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FOR OFFICIAL USE

PART A  
IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



CRPL-F176  
PART A

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## IONOSPHERIC DATA

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## SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.  
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numerical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
- b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.
- c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.
- d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

## PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949
December	150*	150*	150	42	11	15	33	53	86	108	
November	150*	150*	147	35	10	16	38	52	87	112	
October	150*	150*	135	31	10	17	43	52	90	114	
September	141	150*	150*	119	30	8	18	46	54	91	115
August	142	150*	150*	105	27	8	18	49	57	96	111
July	141	150*	150*	95	22	8	20	51	60	101	108
June	143	150*	150*	89	18	9	21	52	63	103	108
May	146	150*	150*	77	16	10	22	52	68	102	108
April	150*	150*	150*	68	13	10	24	52	74	101	109
March	150*	150*	150*	60	14	11	27	52	78	103	111
February	150*	150*	150*	53	14	12	29	51	82	103	113
January	150*	150*	150*	48	12	14	30	53	85	105	112

\*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1958.

### Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	184	183			

## WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 143 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:

Brisbane, Australia  
Canberra, Australia  
Townsville, Australia

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:  
Watheroo, Western Australia

University of Graz:  
Graz, Austria

Meteorological Service of the Belgian Congo and Ruanda-Urundi:  
Leopoldville, Belgian Congo

Electronics Directorate of the Brazilian Navy:  
Natal, Brazil

Escola Politecnica, University of Sao Paulo:  
Sao Paulo, Brazil

British Department of Scientific and Industrial Research, Radio Research Board:  
Falkland Is.  
Inverness, Scotland  
Singapore, British Malaya

Instituto Geofisico de Los Andes Colombianos:  
Bogota, Colombia

General Direction of Posts and Telegraphs, Helsinki, Finland:  
Nurmijarvi, Finland

French National Center for Telecommunications Studies:  
Dakar, French West Africa  
Tananarive, Madagascar

Central Institute of Meteorology, Budapest, Hungary:  
Budapest, Hungary

Icelandic Post and Telegraph Administration:  
Reykjavik, Iceland

Indian Council of Scientific and Industrial Research, Radio Research Committee, New Delhi, India:

Ahmedabad (Physical Research Laboratory)

Bombay (All India Radio)

Calcutta (Institute of Radio Physics and Electronics)

Delhi (All India Radio)

Kodaikanal (India Meteorological Department)

Madras (All India Radio)

Tiruchi (All India Radio)

Trivandrum (All India Radio)

Geophysical and Geodetic Institute, Genoa, Italy:

Monte Capellino, Italy

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:

Campbell I.

Cape Hallett (Adare), Antarctica

Christchurch, New Zealand

Rarotonga, Cook Is.

Scott Base, Antarctica

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:

Oslo, Norway

Tromso, Norway

Manila Observatory:

Baguio, P.I.

South African Council for Scientific and Industrial Research:

Capetown, Union of South Africa

Johannesburg, Union of South Africa

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:

Lulea, Sweden

United States Army Signal Corps:

Adak, Alaska

Ft. Monmouth, New Jersey

Grand Bahama I.

Okinawa I.

White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):

Anchorage, Alaska

Chiclayo, Peru

Chimbote, Peru

National Bureau of Standards (Central Radio Propagation Laboratory), continued:

Fairbanks (College), Alaska (Geophysical Institute of the University of Alaska)

Huancayo, Peru (Instituto Geofisico de Huancayo)

Little America, Antarctica

Point Barrow, Alaska

Talara, Peru (Instituto Geofisico de Huancayo)

# TABLES OF IONOSPHERIC DATA

December 1958 - February 1952

Table 1

Fairbanks, Alaska (64.9°N, 147.8°W)							December 1958	
Time	h'F2	f0F2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(4.15)				4.0	(2.70)		
01	(4.1)				3.8	(2.60)		
02	(4.35)				4.0	(2.50)		
03	(4.7)				3.5	(2.50)		
04	(4.65)				3.4	(2.50)		
05	(4.9)				3.4	(2.60)		
06	(4.8)				3.2	(2.58)		
07	(4.7)				2.5	(2.60)		
08	(4.9)					(2.65)		
09	(6.2)					(2.80)		
10	8.9	---	---	---		3.00		
11	10.3	---	---	---		3.00		
12	11.7	<141	2.10			3.02		
13	12.0	---	---	---		3.10		
14	12.4	---	(1.80)			3.00		
15	11.6	---	---	---		2.90		
16	10.65					3.00		
17	(8.9)					(2.98)		
18	6.9					3.02		
19	5.4					3.00		
20	4.7					2.95		
21	(4.15)				2.2	(2.82)		
22	(3.7)				2.8	(2.98)		
23	(4.2)				3.4	(2.82)		

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2

Adak, Alaska (51.9°N, 176.6°W)							December 1950	
Time	h'F2	f0F2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00					2.85	<360		2.50
01					2.9	<340		2.50
02					2.9	<350		2.40
03					2.8	<345		2.45
04					2.9	<330		2.50
05					2.9	340		1.2
06					2.9	(320)		1.5
07					4.0	255		2.58
08					7.8	230	113	2.60
09					11.4	220	(119)	3.05
10					13.5	220	(121)	3.20
11					14.0	220	119	3.20
12					14.2	220	121	3.10
13					14.45	220	119	3.08
14					13.8	220	121	3.00
15					12.6	220	<138	3.05
16					11.0	215	---	3.00
17					9.5	220		>1.9
18					7.2	215		3.15
19					4.6	220		3.20
20					3.2	(250)		3.00
21					2.9	(270)		2.90
22					2.8	<310		2.70
23					2.75	<355		2.52

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Okinawa I. (26.3°N, 127.8°E)							December 1958	
Time	h'F2	f0F2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	9.2	240				2.80		
01	8.5	240				2.90		
02	7.9	230				2.85		
03	6.7	230				2.95		
04	5.8	225				3.00		
05	4.6	240				2.70		
06	4.5	(260)				2.68		
07	7.1	270				2.90		
08	11.5	240	---	---		3.20		
09	13.4	230	109	(3.18)		3.20		
10	14.2	225	109	3.58		3.05		
11	14.2	220	109	3.82	3.9	2.85		
12	15.0	220	109	3.95	4.0	2.75		
13	15.6	230	111	3.90		2.65		
14	340	16.1	225	---	111	3.82	3.9	2.65
15	(340)	16.4	230	---	109	3.60		2.65
16	16.0	240	111	3.15		2.70		
17	15.7	240				2.80		
18	15.5	220				2.80		
19	14.6	235				2.80		
20	14.5	235				2.85		
21	(14.8)	220				2.90		
22	(12.5)	210				2.90		
23	10.0	220				2.78		

Time: 135.0°E.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Talara, Peru (4.6°S, 81.3°W)							December 1958	
Time	h'F2	f0F2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			11.1	270				2.60
01			9.6	280				2.80
02			8.8	260				2.75
03			8.4	250				2.90
04			7.4	230				3.00
05			6.75	230				3.15
06			7.3	265				2.80
07			11.1	260	119	2.68	4.6	2.85
08			13.5	240	111	3.38	4.6	2.80
09			14.35	230	109	3.80	4.3	2.65
10			14.6	215	109	4.05	4.5	2.50
11			14.85	220	---	109	4.20	2.28
12			(520)	14.9	215	---	109	4.30
13				14.65	215	---	107	4.30
14				510	14.45	210	4.15	2.05
15				(500)	14.1	220	109	3.95
16					---	(13.7)	3.62	(2.15)
17					13.1	260	113	3.18
18					13.0	(280)	123	2.35
19					12.8	300		4.0
20					12.8	340		2.5
21					12.7	315		2.38
22					>12.15	300		3.2
23					11.7	275		4.5

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5

Huancayo, Peru (12.0°S, 75.3°W)							December 1958	
Time	h'F2	f0F2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	8.0	375			3.2	2.30		
01	7.8	360			4.5	2.40		
02	7.75	330			4.0	2.70		
03	7.85	265			4.3	2.90		
04	7.05	230			4.5	3.02		
05	6.3	230			4.3	3.10		
06	9.3	260	119	2.25	4.3	2.95		
07	11.7	235	105	3.05	5.7	2.85		
08	13.2	225	107	(3.60)	8.0	2.65		
09	13.9	215	105	(3.95)	9.0	2.45		
10	14.0	205	---	(4.15)	9.0	2.25		
11	13.55	200	---	---	10.2	2.10		
12	13.0	200	6.6	---	(4.30)	9.2	2.05	
13	(500)	13.15	200	6.6	---	(4.30)	10.2	2.05
14	12.4	200	6.2	---	(4.15)	9.0	2.05	
15	12.3	210	---	---	(3.88)	9.0	2.10	
16	12.5	225	105	(3.48)	8.8	2.05		
17	11.85	250	105	(3.00)	7.0	2.05		
18	11.5	280	(127)	(2.15)	4.7	2.15		
19	11.3	325				2.20		
20	10.55	(390)				2.10		
21	9.6	(390)				2.05		
22	9.1	390			2.4	2.15		
23	8.6	390				2.25		

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 6

Point Barrow, Alaska (71.3°N, 156.8°W)							November 1958	
Time	h'F2	f0F2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			(4.65)	270				3.6 (2.90)
01			(4.7)	290				4.5 (2.72)
02			(5.0)	310				4.0 (2.70)
03			(4.8)	315				3.8 (2.70)
04			(5.0)	330				2.7 (2.55)
05			(5.0)	310				2.7 (2.62)
06			(4.8)	340				2.9 (2.60)
07			(5.3)	340				3.2 (2.60)
08			(5.5)	<340				3.3 (2.75)
09			(6.2)	300				3.1 (2.80)
10			7.15	270				2.6 (2.95)
11			9.0	250				3.00
12			10.2	250				3.05
13			10.8	250				3.00
14			11.3	240				3.00
15			11.8	240				3.00
16			(11.0)	240				3.00
17			9.2	235				2.95
18			7.6	250				3.00
19			5.8	260				2.95
20			(4.6)	270				

Table 7

Fairbanks, Alaska (64.9°N, 147.8°W)							November 1958
Time	h*F2	foF2	h*F	foF1	h*E	foE	foEs (M3000)F2
00	(3.6)				3.2	(2.65)	
01	(3.65)				4.1	(2.60)	
02	(4.3)				4.4	(2.55)	
03	(4.5)				4.7	(2.50)	
04	(4.8)				3.6	(2.55)	
05	(4.6)				3.5	(2.50)	
06	(4.05)				2.6	(2.60)	
07	(4.3)					(2.60)	
08	(5.9)					(2.90)	
09	(8.0)	---	---	---		(2.95)	
10	(10.2)	<119	2.35			(3.05)	
11	(11.6)	(125)	2.30			(3.00)	
12	12.4	123	2.30			3.00	
13	(13.4)	(131)	2.20			(3.00)	
14	(13.7)	<145	2.00			(3.02)	
15	13.15	---	E			3.00	
16	(12.2)					(2.95)	
17	(10.7)					(2.95)	
18	(8.55)					(3.00)	
19	(7.7)					(3.00)	
20	(5.35)					(3.00)	
21	(4.4)				2.3	(3.00)	
22	(4.2)				2.2	(2.88)	
23	(3.6)				2.4	(2.78)	

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Anchorage, Alaska (61.2°N, 149.9°W)							November 1958
Time	h*F2	foF2	h*F	foF1	h*E	foE	foEs (M3000)F2
00	3.2						2.50
01	3.1						2.40
02	3.1						2.38
03	3.2						2.42
04	(3.3)						(2.35)
05	(4.0)						(2.40)
06	(3.0)						(2.45)
07	4.1						2.55
08	6.0	---	---	---			2.98
09	8.6	118	2.02				3.05
10	11.2	127	2.30				3.05
11	12.6	125	2.50				3.00
12	13.5	125	2.50				3.05
13	14.0	129	2.45				3.00
14	14.4	(127)	2.25				3.05
15	14.0	---	---	---			3.00
16	12.8						3.00
17	11.2						3.00
18	9.3						3.05
19	7.25						3.05
20	5.2						3.00
21	4.4						3.00
22	3.6						2.88
23	(3.2)						2.65

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Grand Bahama I. (26.6°N, 78.2°W)							November 1958
Time	h*F2	foF2	h*F	foF1	h*E	foE	foEs (M3000)F2
00	6.4	250			2.4	2.95	
01	5.9	250			2.2	2.90	
02	5.15	<255			2.3	2.88	
03	5.1	(260)				2.78	
04	4.7	(270)			1.9	2.65	
05	4.7	(280)			2.4	2.70	
06	5.1	(260)			2.9	2.85	
07	6.15	240	(131)	2.30	2.7	3.20	
08	12.2	230	<115	3.00	3.1	3.15	
09	13.4	230	<109	3.50		3.05	
10	13.75	225	(109)	3.80		2.95	
11	---	13.7	220	---	<109	3.95	4.0
12	---	13.5	220	---	<107	4.00	4.1
13	---	13.3	225	(109)	3.95	4.0	2.70
14	---	13.1	230	(109)	3.42	3.8	2.65
15	13.0	230	(109)	3.42	3.8	2.65	
16	12.8	240	111	2.98	3.4	2.68	
17	12.2	240	<124	2.18	3.2	2.75	
18	11.45	230			3.2	2.72	
19	10.0	<250			2.6	2.75	
20	9.2	250			2.6	2.85	
21	8.3	240			2.4	2.90	
22	7.5	<245			2.8	2.90	
23	6.95	250			2.6	2.95	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Reykjavik, Iceland (64.1°N, 21.8°W)							November 1958
Time	h*F2	foF2	h*F	foF1	h*E	foE	foEs (M3000)F2
00			(6.4)	370			3.7
01			>6.0	370			3.5
02			>7.5	350			3.1
03			(6.1)	330			2.8
04			>6.4	300			(2.55)
05			>5.9	285			(2.65)
06			5.3	270			(2.65)
07			5.0	270			2.70
08			5.7	270			2.70
09			8.0	260	119	---	2.70
10			10.5	245			2.90
11			12.3	240			2.95
12			>13.0	240			(3.00)
13			>13.0	240	<126	---	(2.90)
14			13.0	235	<129	---	(2.95)
15			>12.4	240		(2.05)	(3.02)
16			>11.0	240			(2.95)
17			>9.8	250			2.90
18			8.5	275			2.90
19			5.8	300			2.70
20			>6.0	315			2.70
21			>5.4	360			2.2
22			>6.5	340			(2.65)
23			>6.4	350			2.6

Time: 15.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 10

White Sands, New Mexico (32.3°N, 106.5°W)							November 1958
Time	h*F2	foF2	h*F	foF1	h*E	foE	foEs (M3000)F2
00			4.8	280			2.1
01			4.7	275			2.72
02			4.5	280			2.75
03			4.5	275			2.68
04			4.5	280			2.65
05			4.3	(300)			2.62
06			4.7	280			2.75
07			8.7	240	<129	2.15	3.12
08			12.0	230	113	2.85	3.15
09			13.6	225	111	3.30	3.10
10			14.3	230	(111)	3.60	3.6
11			14.6	220	111	3.70	4.1
12			14.7	225	<115	3.70	4.0
13			14.4	230	<115	3.70	3.9
14			14.3	230	115	3.50	3.8
15			13.85	235	115	3.25	3.6
16			13.5	240	115	2.70	3.0
17			13.0	235			2.75
18			11.5	225			2.85
19			10.0	230			2.95
20			8.2	230			3.00
21			6.5	245			2.90
22			5.5	255			2.90
23			5.1	260			2.80

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Okinawa I. (26.3°N, 127.8°E)							November 1958
Time	h*F2	foF2	h*F	foF1	h*E	foE	foEs (M3000)F2
00			(12.75)	225			>2.90
01			11.25	230			3.00
02			10.3	230			2.95
03			8.65	230			3.00
04			7.4	220			3.05
05			5.7	230			2.82
06			5.45	(270)			2.75
07			9.0	255			3.05
08			12.5	235	(115)	(2.80)	3.15
09			14.45	230	(111)	(3.35)	3.10
10			15.2	225	(111)	(3.70)	3.00
11			15.3	220	109	(4.00)	4.2
12			15.7	220	109	(4.00)	>4.2
13			(360)	16.5	225	(111)	(3.98)
14			(355)	16.95	230	111	(3.82)
15			(350)	17.2	230	113	(3.65)
16			---	16.9	235	115	3.3
17			17.0	240			2.75
18			17.25	240			2.80
19			17.25	250			2.75
20			18.05	250			2.80
21			>17.5	230			2.90
22			17.35	220			2.95
23			>14.25	225			(2.90)

Time: 135.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13

Baguio, P. I. (16.4°N, 120.6°E)		November 1958						
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(12.2)	250				(2.05)		
01	(11.5)	250				(2.90)		
02	(10.2)	240				(2.90)		
03	0.6	240				2.82		
04	7.55	250				2.02		
05	6.95	250				2.08		
06	7.8	300				2.70		
07	11.0	275	129	2.00		2.90		
08	14.7	260	121	3.35		2.00		
09	16.5	250	121	(3.70)		2.65		
10	16.5	245	119	(3.95)		2.40		
11	16.4	240	119	(4.00)		2.20		
12	15.95	230	117	4.05		2.10		
13	(15.5)	240	119	(4.00)	4.0	(2.08)		
14	(15.0)	250	119	(3.80)	4.0	(2.10)		
15	(15.0)	255	121	3.50		(2.10)		
16	(14.9)	270	(126)	3.02	3.0	(2.15)		
17	>13.95	300	---	---		(2.10)		
18	(13.1)	345				(2.20)		
19	(12.5)	400				(2.15)		
20	>12.0	<355				(2.30)		
21	>12.0	300				(2.60)		
22	(12.8)	260				(2.80)		
23	>12.25	250				(2.00)		

Time: 120.0°E.  
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 15

Chimbote, Peru (9.1°S, 78.6°W)		October 1958						
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	9.5	240				3.4		2.70
01	9.6	240						2.60
02	9.0	240				2.0		2.90
03	8.5	235				2.0		3.00
04	7.3	230						3.08
05	6.2	235						3.10
06	8.1	275	<145	1.98		2.90		
07	11.7	250	121	2.90		2.95		
08	14.0	240	119	3.50		2.75		
09	14.9	230	119	3.90		2.55		
10	15.3	220	117	4.15	5.0	2.30		
11	15.2	220	117	4.30	7.4	2.10		
12	13.7	215	116	4.30	8.0	2.05		
13	13.0	215	---	115	4.30	7.4		2.00
14	12.6	210	115	4.15	7.3	2.05		
15	12.5	220	117	3.90	7.4	2.10		
16	12.5	240	117	3.45	6.7	2.10		
17	12.0	265	119	2.90	5.0	2.05		
18	(11.9)	300	<155	2.00	4.5	(2.10)		
19	11.4	405				2.00		
20	(10.6)	445				2.05		
21	(10.5)	360				1.5		2.15
22	10.5	300				2.0		2.45
23	>10.5	250				3.5		2.55

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17

Tromso, Norway (69.7°N, 19.0°E)		September 1958						
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(5.6)	350				4.0	----	
01	(5.6)	355	---	----	3.3	(2.30)		
02	(5.7)	340	---	----	3.2	(2.30)		
03	(5.8)	340	---	----	3.2	(2.40)		
04	---	5.6	300	---	1.40	2.6	2.40	
05	---	6.2	290	---	110	1.90	2.70	
06	(260)	7.0	260	---	130	2.25	2.70	
07	(250)	7.8	255	---	110	2.70	2.70	
08	(250)	8.2	250	---	120	2.75	2.70	
09	---	8.6	245	---	110	3.10	2.60	
10	---	8.8	245	---	110	3.15	2.55	
11	(450)	9.1	245	---	110	3.20	2.55	
12	---	9.2	245	---	110	3.20	2.55	
13	---	9.2	245	---	110	3.15	2.55	
14	---	9.2	250	---	110	3.10	2.55	
15	(280)	8.9	250	---	110	2.90	2.65	
16	(250)	8.3	255	---	120	2.80	2.70	
17	(250)	7.5	270	---	115	2.50	2.8	
18	(260)	7.8	260	145	2.05	2.8	2.70	
19	---	(6.4)	270	---	140	2.20	2.55	
20	---	(6.4)	295	---		2.50		
21	---	(5.6)	310	---	---	3.2	(2.40)	
22	---	(5.7)	320	---	---	3.4	(2.30)	
23	---	(5.5)	355	---	---	3.9	(2.30)	

Time: 15.0°E.  
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 14

Huancayo, Peru (12.0°S, 75.3°W)		November 1958						
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			0.8			330		
01			(8.8)	200				(2.68)
02			8.8	260				2.90
03			8.45	220				3.02
04			7.2	220				3.10
05			6.0	220				3.10
06			9.2	260				3.00
07			12.1	235				2.52
08			13.8	225				2.65
09			14.5	215				2.45
10			14.7	210				2.30
11			14.0	210				2.20
12			14.4	205				2.15
13			13.9	200				2.10
14			13.9	210				2.10
15			13.3	215				2.10
16			13.0	230				2.05
17			12.4	260				2.05
18			11.0	295				2.10
19			10.05	370				2.10
20			9.1	(430)				2.05
21			8.95	(400)				2.10
22			(8.9)	400				(2.15)
23			(8.9)	370				(2.45)

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 16

Huancayo, Peru (12.0°S, 75.3°W)		October 1958						
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			9.2	235				3.2
01			9.0	235				2.80
02			8.8	230				2.95
03			8.0	225				3.05
04			7.0	225				3.15
05			5.5	230				3.12
06			9.0	265				3.00
07			12.5	240				2.95
08			14.2	230				2.80
09			15.1	225				2.55
10			15.4	215				2.25
11			15.05	210				2.05
12			13.5	210				2.05
13			12.5	205				2.05
14			12.4	210				2.05
15			12.3	220				2.05
16			12.2	235				2.08
17			11.8	260				2.05
18			11.4	310				2.05
19			10.5	420				2.00
20			10.0	(440)				2.05
21			9.7	(375)				2.20
22			9.55	300				2.40
23			9.6	255				2.60

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 18

Lulea, Sweden (65.6°N, 22.1°E)		September 1958						
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			(6.0)	310				(2.3)
01			(5.6)	320				(2.3)
02			(5.4)	330				(2.4)
03			(5.2)	310				(2.5)
04			(5.2)	300				(2.5)
05			6.0	270				(2.6)
06			7.2	260				2.6
07			8.0	250				2.65
08			8.2	250				2.7
09			(490)	9.1	240			2.6
10			9.2	240				2.6
11			10.0	240	5.2	115	3.2	2.6
12			9.6	240				2.6
13			9.6	240				2.6
14			9.9	240				2.6
15			9.5	250				2.6
16			9.2	250				2.65
17			9.0	260				2.7
18			8.4	260				2.7
19			8.1	255				2.7
20			8.0	260				2.6
21			(6.9)	290				<1.8</td

Table 19

Nurmijarvi, Finland (60.5°N, 24.6°E)							September 1958	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	6.1					2.50		
01	5.9					2.45		
02	5.6					2.50		
03	5.3					2.45		
04	5.2					2.50		
05	5.2					2.60		
06	6.0					2.75		
07	6.9				2.3	2.80		
08	7.7				2.9	2.75		
09	8.0				3.0	2.70		
10	9.5				3.3	2.70		
11	9.7		5.3		3.2	2.65		
12	9.7					2.65		
13	9.6		5.4			2.60		
14	9.7					2.65		
15	9.3					2.70		
16	9.2					2.70		
17	9.6					2.70		
18	9.6					2.75		
19	8.9					2.75		
20	8.2					2.70		
21	8.0					2.70		
22	7.0					2.60		
23	6.7					2.55		

Time: 30.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 21

Graz, Austria (47.1°N, 15.5°E)							September 1958	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	>6.5	300						
01	56.7	315						
02	56.6	310						
03	(6.3)	300						
04	55.6	300						
05	55.1	280						
06	56.7	250						
07	8.4	230						
08	88.9	230			(3.4)	3.4		
09	59.4	220			110	3.4	3.6	
10	59.3	220			120	3.5	3.9	
11	(9.9)	230			110	3.6	3.8	
12	59.3	230			(120)	(3.6)	3.0	
13	(10.3)	220			(125)	(3.7)	3.7	
14	59.3	230				(3.5)	3.6	
15	59.3	230						
16	59.3	230						
17	88.9	240						
18	80.9	250						
19	88.4	250						
20	88.4	260						
21	(7.6)	270						
22	56.6	300						
23	>6.8	310						

Time: 15.0°E.

Sweep: 2.0 Mc to 15.0 Mc in 50 seconds.

Table 23

Singapore, British Malaya (1.3°N, 103.8°E)							September 1958	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(12.5)	230				1.8	(2.60)	
01	11.2	245			---	<1.3	2.85	
02	10.2	240			---	<1.3	2.85	
03	9.0	235			---	1.2	2.95	
04	8.4	230			---	<1.2	3.00	
05	6.4	235			---	<1.3	3.10	
06	7.1	280			---		2.90	
07	11.1	255			120	2.90	3.0	2.95
08	13.1	245			115	3.55	2.65	
09	14.2	230			110	3.90	4.1	2.45
10	14.2	220			110	4.20		2.15
11	>14.3	210			110	(4.35)		2.10
12	>13.6	210			110	4.40		2.05
13	13.3	215			110	4.35		2.00
14	>13.0	210			110	4.20		2.00
15	13.1	220			110	3.90		2.05
16	13.4	250			110	3.40		2.10
17	13.6	265			115	2.80		2.15
18	>13.3	300			110	---		2.15
19	(13.2)	400				<1.5	----	
20	---	395				<1.6	----	
21	---	300				<1.6	----	
22	---	255				2.3	----	
23	---	230				1.4	----	

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 20

Inverness, Scotland (57.4°N, 4.2°W)							September 1958	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			6.5		300			1.3
01			5.9		300			1.4
02			5.6		300			1.1
03			5.3		300			<1.0
04			5.0		295			1.2
05			5.2		300			1.40
06			6.2		265	---	110	1.90
07			7.1		250	---	110	2.50
08			7.8		250	---	110	2.85
09			8.4		240	---	110	3.20
10			(495)		9.0	240	5.5	3.40
11			(430)		9.6	235	5.4	3.55
12			(460)		9.2	235	105	3.55
13			(465)		9.2	245	105	3.55
14			---		9.5	245	105	3.50
15			---		9.4	250	105	3.40
16			---		10.0	250	110	3.10
17			9.8		250		110	2.60
18			9.8		260		110	2.20
19			9.1		250	---	---	<1.6
20			8.5		250	---	---	<1.6
21			7.8		250		---	<1.6
22			7.0		270		---	<1.6
23			6.8		290		---	<1.5

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 21

Monte Capellino, Italy (44.6°N, 9.0°E)							September 1958	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00			7.8					2.53
01			7.6					2.50
02			7.3					2.52
03			6.9					2.55
04			6.6					2.60
05			6.6					2.57
06			7.4					2.68
07			9.1					2.4
08			10.4					2.91
09			10.8					2.87
10			12.0					2.81
11			11.9					2.66
12			11.7					2.61
13			12.1					2.54
14			11.7					2.54
15			11.4					2.58
16			11.5					2.62
17			11.6					2.64
18			11.6					2.71
19			10.4					2.70
20			9.0					2.66
21			8.4					2.73
22			7.8					2.60
23			7.2					2.54

Time: 15.0°E.

Sweep: 2.0 Mc to 15.0 Mc in 50 seconds.

Table 23

Talara, Peru (4.6°S, 81.3°W)							September 1958	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			11.3		225			2.0
01			10.4		230			2.05
02			9.45		230			2.90
03			8.4		230			2.98
04			7.0		230			3.00
05			5.8		235			3.02
06			5.4		270			2.65
07			9.0		260	121	2.60	2.80
08			11.3		240	113	3.40	2.70
09			13.0		230	111	3.85	2.45
10			14.0		220	109	4.15	2.30
11			14.1		210	109	4.30	2.15
12			14.2		205	109	4.35	2.05
13			13.6		205	107	4.30	2.00
14			13.1		205	107	4.12	2.05
15			12.9		210	107	3.90	2.00
16			12.5		220	109	3.60	2.00
17			12.0		250	111	3.08	2.05
18			11.5		290	<135	2.28	3.8
19			11.4		370			2.3
20			11.1		410			(2.15)
21			11.5		320			1.8
22			11.8		245			(2.40)
23			>11.7		225			2.4

Table 25

Chimbote, Peru (9.1°S, 78.6°W)									September 1958							
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2								
00	9.2	230				2.8	2.80		00	8.5	220			2.88		
01	8.4	240				1.8	2.80		01	8.15	230			2.90		
02	8.1	240					2.92		02	7.4	235			2.95		
03	7.0	240					3.00		03	6.7	235			2.98		
04	5.75	230					3.00		04	5.75	230			3.05		
05	4.9	240					3.00		05	5.4	230			3.10		
06	5.7	270					2.75		06	6.85	270			2.90		
07	9.7	260			125	2.75	3.6	2.90	07	10.55	245		115	2.85	4.2	2.90
08	12.1	240			119	3.42	5.0	2.70	08	12.95	230		109	(3.50)	7.8	2.70
09	13.65	230			119	3.90	5.0	2.48	09	14.3	220		109	(3.92)	8.0	2.52
10	14.05	220			117	4.10	8.0	2.25	10	14.45	215		107	(4.15)	8.0	2.28
11	13.9	215			115	4.30	8.0	2.15	11	14.1	210		---	(4.25)	9.0	2.15
12	12.6	210			115	4.30	8.0	2.10	12	12.5	200		---	(4.25)	9.0	2.10
13	12.05	210			112	4.30	8.0	2.05	13	11.9	200		---	(4.25)	9.0	2.05
14	---	215			113	4.20	7.0	2.00	14	11.9	200		---	(4.08)	8.0	2.05
15	11.45	215			115	4.00	7.3	2.02	15	11.6	210		---	(3.82)	8.0	2.05
16	11.2	230			115	3.55	7.1	2.05	16	11.2	235		106	(3.40)	7.8	2.10
17	10.9	260			119	3.00	5.0	2.05	17	11.0	260		109	(2.80)	7.0	2.08
18	10.7	300			<149	2.10	3.4	2.10	18	10.7	310		(141)	1.75	4.3	2.15
19	9.75	410					2.00		19	9.55	435					2.02
20	>9.5	(425)					2.15		20	9.4	(410)					2.15
21	10.5	300					2.40		21	9.7	(300)					2.45
22	10.15	245					2.0	2.60	22	10.35	235					2.70
23	9.4	235						2.70	23	9.8	225					2.85

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 27

Watheroo, W. Australia (30.3°S, 115.9°E)									September 1958						
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2							
00	7.0	250					3.05		00	>7.8	250			(2.85)	
01	6.8	250					3.05		01	>7.6	250			2.80	
02	6.5	250					3.05		02	7.3	240			2.70	
03	6.1	250					3.10		03	(6.9)	240			(2.85)	
04	5.9	255					3.00		04	>6.6	250			2.70	
05	5.8	270					2.95		05	6.5	250			2.80	
06	6.6	265		<200	1.40		3.05		06	>7.6	250		150	1.80	3.00
07	>8.4	240		110	2.60		---		07	10.4	220		105	2.70	3.20
08	>10.5	230		105	3.20		---		08	12.2	215		100	3.25	3.20
09	>10.5	225		100	3.55		---		09	13.0	210		100	3.55	3.15
10	>10.5	215		100	3.90		---		10	13.1	205		100	3.80	2.95
11	>10.5	(220)		105	4.00		---		11	13.0	205		100	3.90	2.90
12	>10.5	(220)		100	(4.00)		---		12	12.9	200		100	4.00	2.85
13	>10.5	(220)		105	(4.00)		---		13	12.2	200		100	3.95	2.75
14	>10.5	220		105	3.95		(3.00)		14	11.9	200		100	3.85	2.75
15	>10.5	220		105	3.80		---		15	11.6	205		100	3.60	2.70
16	>10.5	230		105	3.35		(2.90)		16	11.2	210		100	3.20	2.75
17	>10.5	245		110	2.85		---		17	11.0	235		110	2.60	2.80
18	>7.0	250		120	2.00		---		18	11.0	240		100	1.70	2.85
19	>7.0	245					---		19	>10.0	235				(2.70)
20	>7.0	245					---		20	>9.5	245				---
21	>7.0	250					---		21	>9.0	240				(2.85)
22	>7.0	250					(3.05)		22	8.8	245				2.80
23	>7.0	250					(3.00)		23	8.6	250				2.80

Time: 120.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 29

Falkland Is. (51.7°S, 57.8°W)									September 1958							
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2								
00	7.3	310					2.30		00	6.75	300			2.55		
01	7.4	310					2.45		01	6.4	290			2.55		
02	7.2	300					2.50		02	6.0	300			2.50		
03	7.0	295					2.55		03	5.6	310			2.50		
04	6.6	250					2.50		04	5.2	300			2.50		
05	6.4	265			170	2.00	2.70		05	---	290		---	2.70		
06	7.9	250			120	2.50	3.00		06	6.45	250		119	2.45	2.95	
07	10.2	240			110	3.40	3.7	2.90	07	(305)	235		113	3.10	3.2	
08	12.0	240			115	3.00	2.95		08	405	230		5.3	112	(3.50)	2.75
09	13.6	240			110	3.50	3.6	2.70	09	440	220		5.6	111	(3.80)	2.62
10	13.8	240			110	3.55	4.4	2.85	10	410	210		5.7	111	(3.95)	2.65
11	13.8	235			105	3.70	5.2	2.70	11	460	220		5.8	111	>4.02	2.58
12	13.6	240			105	3.70	4.0	2.70	12	455	225		5.9	112	>4.00	2.52
13	13.2	240			110	3.60	3.7	2.70	13	440	225		5.8	113	(4.00)	2.55
14	12.5	240			110	3.50	3.6	2.70	14	475	230		5.6	113	4.00	2.55
15	11.8	250			110	3.30	3.4	2.70	15	440	230		5.6	111	3.85	2.50
16	11.4	250			115	2.90	3.2	(2.90)	16	450	240		5.4	111	3.60	2.50
17	10.5	250			130	2.30	2.6	2.90	17	(345)	245		---	113	3.20	3.3
18	9.5	250			170	2.5	2.85		18	8.1	260		121	2.50	2.9	2.65
19	0.1	250			---	2.3	2.70		19	8.0	275			2.3	2.70	
20	7.3	250			---	2.1	2.50		20	7.9	275			3.1	2.60	
21	7.2	270			---	<1.4	2.35		21	7.7	280			3.0	2.60	
22	7.3	300			---	<1.5	2.45		22	7.2	290					2.60
23	7.3	305			---	<1.4	2.35		23	7.0	300					2.60

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 26

Huancayo, Peru (12.0°S, 75.3°W)									September 1958							
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2								
00	8.5	220							00	10.55	245		115	2.85	4.2	2.90
01	8.15	230							01	12.95	230		109	(3.50)	7.8	2.70
02	7.4	235							02	14.3	220		109	(3.92)	8.0	2.52
03	6.7	235							03	14.45	215		107	(4.15)	8.0	2.28
04	5.75	230							04	14.1	210		---	(4.25)	9.0	2.15
05	5.4	230							05	11.9	200		---	(4.25)	9.0	2.05
06	6.85	270							06	10.7	200		---	(4.08)	8.0	2.05
07	10.55	245							07	9.55	435					2.02
08	12.95	230							08	9.4	(410)					2.15
09	14.3	220</td														

Table 31

Singapore, British Malaya (1.3°N, 103.0°E)								August 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	11.0	240	---	---	3.0	2.8	2.80		
01	10.2	240		145	---	2.8	2.75		
02	9.3	240		---	2.6	2.85			
03	8.8	240		---	---	<1.5	2.95		
04	7.4	240		---	---	<1.3	3.05		
05	6.3	240		---	---	1.9	3.05		
06	6.9	285		---	---	2.3	2.85		
07	10.9	260		130	2.80	3.3	2.90		
08	13.6	245		115	(3.55)	4.0	2.80		
09	14.5	235		110	4.00	4.7	2.65		
10	14.0	225		110	4.20	4.8	2.40		
11	400	>13.6	215		105	4.35	2.15		
12	>12.3	215		---	105	4.40	2.00		
13	525	>12.3	210		105	4.40	1.95		
14	>11.9	210		---	110	4.25	1.90		
15	>12.0	215		---	110	<4.05	1.95		
16	>11.8	245		110	3.55		2.00		
17	>12.0	255		115	2.90		2.10		
18	>12.3	290		110	1.80	2.8	2.10		
19	>11.5	350		---	---	2.9	(2.25)		
20	11.8	355		---	---	<1.6	(2.35)		
21	(12.8)	260		---	---	2.4	(2.60)		
22	(11.7)	245		---	---	2.0	(2.70)		
23	11.2	230				3.2	2.70		

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 33

Huancayo, Peru (12.0°S, 75.3°W)								August 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	7.8	225					2.95		
01	7.9	225					2.95		
02	7.5	225					3.00		
03	7.0	230					3.00		
04	5.8	235					3.05		
05	5.15	240					3.05		
06	5.6	265					2.85		
07	8.8	255		117	2.50	4.5	2.98		
08	10.9	235		109	(3.30)	0.0	2.75		
09	11.8	220		106	(3.70)	8.2	2.50		
10	---	11.7	210		103	(4.05)	8.4	2.35	
11	---	11.6	205		103	(4.12)	9.0	2.20	
12	11.7	200		---	(4.15)	9.0	2.15		
13	11.3	200		---	(4.15)	9.0	2.10		
14	11.0	200		103	(4.00)	8.4	2.10		
15	10.5	205		103	(3.75)	8.2	2.15		
16	10.3	230		105	(3.35)	8.0	2.12		
17	10.0	260		107	(2.78)	7.2	2.18		
18	9.6	300		<145	1.65	4.5	2.20		
19	8.45	400					2.08		
20	8.0	385					2.20		
21	8.0	300					2.45		
22	8.0	240					2.70		
23	7.9	225					2.85		

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 35

Graz, Austria (47.1°N, 15.5°E)								June 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	>7.5	310							
01	>7.0	335							
02	>6.6	320							
03	>5.5	325							
04	>6.6	300							
05	(7.2)	250							
06	350	>8.2	240	4.6	---	---	4.1		
07	---	8.1	240	4.9	105	3.4	4.6		
08	410	8.6	230	(5.2)	100	3.5	4.5		
09	390	8.7	(210)	(5.8)	100	3.6	5.1		
10	380	>8.6	(220)	---	100	3.8	5.3		
11	390	8.5	200	(6.0)	100	(3.9)	4.4		
12	400	8.8	200	(5.9)	(100)	---	4.4		
13	400	>0.5	215	(5.9)	(115)	---	4.4		
14	390	8.4	210	5.6	---	---	4.4		
15	395	8.4	220	---	100	3.8	4.3		
16	380	8.0	225	5.4	110	3.6	4.0		
17	(340)	(7.8)	230	105	---	---	4.4		
18		(8.2)	250			4.3			
19		(8.3)	285			4.8			
20		>8.1	270			4.4			
21		>8.3	290						
22		>7.7	310						
23		>7.4	310						

Time: 15.0°E.

Sweep: 2.0 Mc to 21.0 Mc in 50 seconds.

Table 32

Natal, Brazil (5.3°S, 35.1°W)								August 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00			(8.9)	(390)					(2.75)
01			(8.05)	(305)					(2.80)
02			7.2	270					2.95
03			>6.75	(235)					3.02
04			6.0	(235)					3.10
05			5.65	(230)					3.15
06			4.45	(240)					3.20
07			8.4	260					3.15
08			11.3	240					3.00
09			12.9	230					2.85
10			13.6	215					2.60
11			13.9	210					2.40
12			14.1	210					2.25
13			13.8	210					2.15
14			13.35	210					2.15
15			12.9	220					2.20
16			12.8	225					2.18
17			12.6	250					2.25
18			(12.5)	280					(2.25)
19			>10.5	(330)					(2.25)
20			>9.2	(410)					(2.05)
21			(8.0)	(460)					(2.08)
22			>5.8	240					---
23			(7.9)	<450					(2.50)

Time: 30.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 32.4 seconds.

Table 34

Johannesburg, Union of S. Africa (26.2°S, 28.0°E)								August 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00			4.2	(255)					<1.4
01			3.7	<255					1.0
02			3.8	<255					2.85
03			3.6	<245					1.9
04			3.3	<250					2.90
05			3.2	<250					1.6
06			3.4	<255					2.80
07			7.5	230					2.2
08			10.2	230					3.15
09			11.8	225					3.00
10			12.6	215					2.95
11			12.5	210					2.80
12			12.4	210					2.60
13			12.0	210					2.60
14			11.8	215					2.65
15			11.6	220					2.65
16			11.4	230					2.70
17			11.2	250					2.80
18			>11.1	240					1.6
19			>9.1	220					2.80
20			>8.0	230					<1.6
21			>7.0	235					<1.6
22			>5.8	240					2.90
23			4.4	<250					<1.4

Time: 30.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 36

Chiclayo, Peru (6.8°S, 79.0°W)								June 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00			8.6	240					2.70
01			8.8	250					2.80
02			8.85	250					2.90
03			8.2	235					3.00
04			7.0	240					3.05
05			5.95	240					2.98
06			5.6	260					2.90
07			7.6	270					2.85
08			8.9	2					

Table 37

Tromso, Norway (69.7°N, 19.0°E)								March 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	5.9	(380)			3.2	(2.25)			
01	5.6	---			3.2	(2.40)			
02	(5.6)	---			3.8	(2.40)			
03	(5.2)	---			4.0	(2.25)			
04	(5.7)	---			4.1	(2.35)			
05	5.0	(295)			3.0	(2.55)			
06	(5.9)	(295)				(2.60)			
07	6.4	(275)				2.70			
08	8.0	---				(2.75)			
09	8.4	---				2.70			
10	9.2	255			2.70	2.60			
11	9.8	255	---	140	2.80	2.55			
12	9.8	250			140	2.90	2.55		
13	9.5	255			140	2.85	2.70		
14	8.7	(260)				2.70			
15	8.6	(200)			2.80	2.70			
16	6.9	(250)				2.70			
17	6.7	295				2.70			
18	5.9	(250)				2.8	2.55		
19	5.9	(300)				3.1	(2.40)		
20	5.7	(320)				3.9	2.40		
21	5.4	(345)				4.0	(2.40)		
22	(5.7)	(360)				3.1	(2.40)		
23	(5.2)	(350)				2.6	(2.40)		

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 39

Budapest, Hungary (47.4°N, 19.2°E)								March 1950	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	6.0	340							
01	5.9	340							
02	5.6	330							
03	5.2	340							
04	5.0	310							
05	>5.7	290							
06	8.0	250	---	130	2.7				
07	>9.3	240		120	3.0				
08	11.1	240	---	120	3.2				
09	12.2	235	---	115	3.5				
10	>12.9	235	---	120	3.4				
11	(320)	13.2	235	6.2	120	3.7			
12	13.0	240	---	120	3.7				
13	12.9	245	---	125	3.5				
14	>11.8	245	---	125	3.3				
15	11.3	250		125	3.0				
16	>10.6	250		130	2.6				
17	9.3	255	---						
18	>7.4	255							
19	>6.0	265							
20	>5.8	290							
21	5.9	310							
22	5.8	325							
23	5.8	335							

Time: 0.0°.

Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 41

Rarotonga I. (21.2°S, 159.8°W)								March 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	----	260				1.2			
01	----	270				1.6	----		
02	(10.4)	270							
03	(8.9)	290					(2.40)		
04	(8.7)	300					2.52		
05	(9.0)	300					1.3	(2.55)	
06	(11.0)	270	---	112	1.9	2.8	(2.84)		
07	13.4	250		112	3.0	3.4	2.97		
08	14.3	240		110	3.6	3.8	2.85		
09	14.7	240		110	3.9	4.1	2.75		
10	15.5	<240		110	4.1		2.68		
11	16.1	230		110	4.2		2.60		
12	16.1	230		110	(4.3)		2.60		
13	390	15.3	240	110	4.2		2.50		
14	380	15.6	240	110	4.0		2.50		
15	380	(15.0)	250	110	3.8	4.2	(2.55)		
16	---	(14.5)	250	110	3.4	4.0	(2.55)		
17	(14.2)	<270		114	2.6	4.3	(2.56)		
18	(14.1)	<300	---	---	4.0		(2.57)		
19	(13.7)	<300			4.0		(2.60)		
20	(13.4)	<300			3.6	----			
21	(13.9)	290			2.5		(2.65)		
22	(13.4)	280			<1.3		(2.65)		
23	----	250				----			

Time: 165.0°W.

Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 38

Oslo, Norway (60.0°N, 11.1°E)								March 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00								4.1	360
01								4.0	360
02								4.1	350
03								4.2	355
04								4.2	340
05								4.0	310
06								4.3	295
07								5.6	265
08								6.9	255
09								7.8	250
10								9.2	250
11								9.4	245
12								10.0	240
13								10.4	250
14								10.8	245
15								11.0	250
16								11.0	250
17								10.4	250
18								10.1	250
19								9.2	250
20								8.8	260
21								7.2	300
22								6.7	340
23								5.4	360

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 40

Townsville, Australia (19.3°S, 146.7°E)								March 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00								>7.2	290
01								>7.3	280
02								>7.0	260
03								>7.0	290
04								>6.5	300
05								(7.0)	310
06								>7.0	305
07								250	120
08								>12.0	250
09								>13.0	240
10								13.6	240
11								14.0	230
12								14.0	240
13								14.0	230
14								13.9	240
15								(13.0)	240
16								10.5	260
06								12.2	250
07								13.0	250
08								13.8	245
09								14.0	240
10								14.8	245
11								15.0	260
12								15.2	250
13								15.0	250
14								14.6	255
15								(445)	(14.4)
16								250	(7.8)
17								14.0	260
18								14.4	285
19								14.0	330
20								14.2	370
21								14.0	300
22								14.2	280
23								14.4	260

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 42

Sao Paulo, Brazil (23.5°S, 46.5°W)								March 1958	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00								<2.0	(3.10)
01								<2.1	(3.15)
02								<2.0	3.05
03								<2.1	2.90
04								<2.1	2.80
05								<2.2	2.60
06									

Table 43

Johannesburg, Union of S. Africa (26.2°S, 28.0°E)							March 1958	
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es	(M3000)F2
00		6.7	260			2.6	2.75	
01		6.1	(270)			<1.8	2.70	
02		5.8	<270			<1.7	2.70	
03		5.0	<265			<1.7	2.60	
04		4.8	(290)			<1.8	2.60	
05		4.6	<310			<1.6	2.50	
06		5.7	285		<1.7	<1.7	2.70	
07		9.4	240			2.6	3.05	
08	---	11.4	230			3.3	3.00	
09	---	12.6	230			3.7	4.0	2.85
10	---	13.1	225			3.9	4.2	2.75
11	---	13.3	225			---	4.4	2.65
12	---	13.6	(215)			---	4.5	2.60
13	---	13.5	---			---	4.6	2.50
14	---	13.4	(230)			---	2.50	
15	---	13.3	240			---	2.50	
16		13.1	245			3.6	3.9	2.55
17		12.8	250			3.1	3.7	2.60
18		12.1	250			---	3.0	2.70
19		11.4	245			<1.7	<2.1	2.75
20		10.3	245				<2.0	2.80
21		9.4	250				<1.9	2.80
22		8.4	250				2.0	2.80
23		7.4	255				2.5	2.75

Time: 30.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 45

Watheroo, W. Australia (30.3°S, 115.9°E)							March 1958	
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es	(M3000)F2
00		(6.8)	290			1.5	(2.90)	
01		(6.6)	295			1.6	2.90	
02		(6.4)	290			1.6	(3.00)	
03		(6.0)	290			1.4	(2.90)	
04		(5.9)	290			---	---	
05		(5.8)	270			---	---	
06		(6.0)	295		---	E	---	
07		>7.0	250		110	(2.30)	---	
08		8.0	240	---	100	3.15	3.6	(3.35)
09	---	(9.2)	225	6.0	100	3.50	3.8	(3.20)
10	---	(9.9)	220	(7.0)	100	3.00	3.9	(3.20)
11	(350)	>10.0	(225)	(7.0)	100	>3.80	(3.00)	
12	(360)	>10.0	(240)	7.0	100	3.90	<2.90	
13	(365)	(9.8)	---	(7.0)	100	3.95	---	
14	(360)	>9.9	(240)	7.0	110	(3.90)	---	
15	(370)	(10.0)	(240)	6.6	100	3.85	(2.90)	
16	---	(9.8)	240	6.5	100	3.60	3.8	---
17		>8.9	245	---	105	3.10	3.3	---
18		>8.5	250	---	115	2.20	---	
19		>7.0	250	---	---	1.7	---	
20		>7.0	250	---	---	1.3	---	
21		(7.2)	250	---	---	---	2.90	
22		>7.0	260	---	---	---	(2.90)	
23		(6.8)	290	---	---	---	(2.80)	

Time: 120.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 47

Christchurch, New Zealand (43.6°S, 172.8°E)							March 1958	
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es	(M3000)F2
00		7.3	300			<1.7	2.45	
01		7.0	310			<1.6	2.35	
02		7.0	300			<1.3	2.40	
03		6.3	310			1.2	2.40	
04		6.0	300			1.4	2.40	
05		5.6	300	---	---	1.5	2.40	
06		5.2	310	---	---	<1.7	2.50	
07	---	6.7	270	---	110	2.2	2.70	
08	---	0.3	250	---	105	2.9	2.75	
09	---	9.6	250	---	100	3.3	3.3	2.85
10	(470)	10.5	240	5.1	100	3.6	3.6	2.00
11	(450)	11.0	230	5.2	100	3.0	3.8	2.70
12	(480)	11.0	230	---	100	3.9	2.70	
13	(420)	11.0	240	---	100	3.9	2.65	
14	---	11.1	240	---	100	3.9	2.65	
15	---	10.8	250	---	100	3.8	2.65	
16	---	10.6	250	---	100	3.4	2.65	
17		10.4	250	---	100	3.0	2.70	
18		10.5	250	---	110	2.5	2.70	
19		10.4	260	---	---	2.0	2.70	
20		9.5	250	---	---	<1.7	2.60	
21		8.6	260	---	---	<1.9	2.55	
22		8.2	290	---	---	<1.7	2.50	
23		0.0	300	---	---	<1.6	2.45	

Time: 100.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 44

Brisbane, Australia (27.5°S, 152.9°E)							March 1958	
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es	(M3000)F2
00			8.4		290			2.60
01			8.0		280			2.60
02			7.9		280			2.55
03			7.3		290			2.50
04			6.8		300			2.50
05			7.0		300			2.50
06			7.8		260	120	<2.10	2.75
07			9.9		240	120	(3.55)	2.85
08			>11.0		230	120	3.30	>3.4
09			>11.0		240	120	(3.55)	2.85
10			>11.0		240	120	3.70	(2.80)
11			>11.0		250	120	>3.80	(2.70)
12			>10.9		250	110	>3.55	(2.60)
13			>11.0		250	110	>3.50	(2.60)
14			(11.0)		250	120	4.35	(2.60)
15			(10.7)		250	120	4.35	(2.60)
16			(10.0)		240	120	3.40	>3.5
17			>9.6		250	130	2.70	2.75
18			>9.5		250	---	(2.00)	2.5
19			>9.0		250	---		2.4
20			>9.0		290	---		2.65
21			9.0		290	---		2.60
22			8.8		290	---		2.70
23			8.4		290	---		2.60

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 46

Capetown, Union of S. Africa (34.1°S, 18.3°E)							March 1958	
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es	(M3000)F2
00			6.0		<265			<1.9
01			5.1		<280			<2.0
02			5.0		<300			<1.7
03			4.0		<310			<1.6
04			4.6		<300			<1.6
05			4.4		<320			2.45
06			4.1		<315			<1.5
07			7.0		255			2.85
08			9.7		245			2.8
09			11.5		240			3.05
10			12.4		235			3.7
11			12.9		230			4.0
12			13.4		(230)			2.80
13			13.6		(230)			2.55
14			13.6		(230)			<2.55
15			13.3		240			2.50
16			13.2		250			3.8
17			12.8		250			2.60
18			12.5		250			2.9
19			11.6		250			2.65
20			10.4		240			<1.8
21			9.3		245			<1.8
22			8.2		250			2.0
23			6.9		(250)			1.9

Time: 30.0°E.

Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Time: 165.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 49

Time	Scott Base (77.0°S, 166.8°E)							(M3000)F2
	h'F2	foF2	h'F	foF1	h'E	foE	foEs	
00	3.8	370	---	---	<2.0	2.30		
01	4.0	350	---	---	2.15			
02	3.8	380	---	---	2.20			
03	4.5	340	---	---	2.30			
04	5.5	340	---	---	<2.0	2.40		
05	5.6	300	---	---	<2.0	2.55		
06	5.6	300	---	120	2.4	2.55		
07	6.5	280	---	---	<2.6	2.50		
08	6.8	260	---	130	2.6	2.70		
09	(7.0)	260	---	---	2.8	2.50		
10	(350)	6.1	250	4.3	---	2.9		
11	(340)	7.1	250	4.3	---	2.60		
12	(340)	7.3	250	4.6	---	<2.9	2.60	
13	(350)	7.4	270	4.3	---	2.55		
14	380	7.3	260	4.4	---	3.0	2.45	
15	(380)	7.4	(260)	4.2	---	2.50		
16	(350)	7.6	280	4.2	---	2.7	2.50	
17	(420)	7.5	<290	3.9	---	2.5	2.45	
18	(400)	7.8	300	3.8	140	2.4	2.50	
19	---	8.4	300	---	---	<2.7	2.50	
20	---	6.8	300	---	---	<2.5	2.40	
21	---	6.2	320	---	---	<1.9	2.50	
22	---	5.2	330	---	---	<1.8	2.30	
23	4.3	350	---	---	---	2.20		

Time: 165.0°E.

Table 51

Time	Little America (70.2°S, 162.2°W)							(M3000)F2
	h'F2	foF2	h'F	foF1	h'E	foE	foEs	
00	(5.8)	(330)				(2.55)		
01	(5.4)	(310)				1.8	(2.55)	
02	(4.7)	310	---	---	2.2	(2.60)		
03	(5.0)	310	---	---	2.2	(2.60)		
04	(4.85)	310	---	---	2.6	(2.70)		
05	(5.45)	300	---	105	---	2.6	(2.88)	
06	(5.8)	270	---	---		(2.90)		
07	(7.3)	260	---	108	(2.30)	(2.90)		
08	(8.85)	<270	---	109	(2.45)	2.90		
09	(8.45)	260	---	111	(2.65)	(2.90)		
10	(7.75)	260	---	111	(2.70)	(2.98)		
11	(7.4)	260	---	(111)	(2.65)	(2.90)		
12	(7.9)	255	---	(111)	(2.80)	(3.02)		
13	(7.8)	(260)	---	<117	(2.75)	(2.90)		
14	(8.0)	250	---	<115	(2.65)	(2.02)		
15	(8.2)	250	---	(116)	---	(2.70)		
16	(8.3)	260	---	105	---	(2.80)		
17	(8.6)	<285	---	119	(1.75)	(2.72)		
18	(8.8)	270	---	125	---	(2.62)		
19	(0.2)	(200)	---	---	---	(2.70)		
20	(8.0)	290	---	---	---	(2.65)		
21	(6.1)	(285)	---	---	---	(2.42)		
22	(5.4)	285	---	---	---	(2.40)		
23	(6.6)	305	---	1.5	---			

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 53

Time	Delhi, India (28.6°N, 77.1°E)							(M3000)F2
	*	foF2	h'F1	foF1	h'E	foE	foEs	
00	400	8.7				2.60		
01	380	8.6				2.70		
02	390	8.1				2.60		
03								
04	400	7.6				2.60		
05	360	7.4				2.80		
06	320	8.2				3.00		
07	340	9.2				2.90		
08	360	9.6				2.80		
09	400	10.0				2.60		
10	440	10.8				2.45		
11	410	11.9				2.55		
12	420	12.5				2.50		
13	440	13.0				2.45		
14	400	13.6				2.60		
15	400	>13.5				2.60		
16	400	13.2				2.60		
17	380	12.9				2.70		
18	360	11.8				2.80		
19	360	11.5				2.80		
20	380	>9.5				2.70		
21	400	>9.0				2.60		
22	400	8.9				2.60		
23	400	8.8				2.60		

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 50

Time	Bogota, Colombia (4.5°N, 74.2°W)							(M3000)F2
	h'F2	foF2	h'F	foF1	h'E	foE	foEs	
00			12.15		220			3.00
01			8.6		210			2.92
02			7.0		230			2.80
03			6.1		245			2.75
04			5.6		250			2.78
05			5.1		260			2.75
06			8.6		270	(135)	2.22	2.90
07			12.3		245	115	3.20	2.90
08			14.3		240	111	3.80	2.85
09			14.8		235	111	4.10	2.75
10			14.4		230	113	4.40	2.60
11			(430)	14.9	<230	111	4.50	2.50
12			440	15.1	(230)	112	(4.50)	4.9
13			460	14.5	(240)	7.4	111	4.40
14			<465	14.9	<245	111	---	5.4
15			450	14.8	<255	109	(3.80)	5.1
16			>15.0		250	109	3.35	4.1
17			>15.0		(270)	119	2.70	4.2
18			>15.0		300			2.50
19			17.2		310			(2.58)
20			(18.1)		280			(2.55)
21			>17.5		230			(2.70)
22			(16.7)		230			(2.65)
23			>14.2		235			(2.90)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 52

Time	Little America (78.2°S, 162.2°W)							(M3000)F2
	h'F2	foF2	h'F	foF1	h'E	foE	foEs	
00			(4.6)		200			(2.75)
01			(4.5)		295	121		(2.70)
02			(4.3)		280	107		(2.80)
03			(4.4)		290			(2.80)
04			(4.2)		290			(2.95)
05			(3.8)		300			(2.98)
06			(3.8)		285			(3.00)
07			(4.1)		300			(2.85)
08			(4.8)		290	115		(3.00)
09			(5.0)		290	109	(1.80)	1.9
10			(4.8)		<265	104	(1.90)	1.9
11			(5.15)		250	111	(1.85)	2.2
12			(5.2)		265	109	(1.98)	2.95
13			(5.5)		260	110	(2.08)	(2.92)
14			(5.3)		260	111	---	(2.90)
15			(5.7)		255	111	---	1.9
16			(6.4)		<260			(2.90)
17			(6.2)		250			(2.80)
18			(6.8)		260			(2.85)
19			(6.95)		240			(2.70)
20			(6.9)		260			(2.75)
21			(5.6)		270			(2.70)
22			(5.4)		290			(2.60)
23			(4.8)		(285)			(2.60)

Time: 165.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 54

Time	Ahmedabad, India (23.0°N, 72.6°E)							(M3000)F2
	h'F2	foF2	h'F	foF1	h'E	foE	foEs	
00			8.4		325			2.1
01			8.3		300			1.6
02			7.8		280			1.5
03			7.4		280			2.55
04			7.0		280			1.4
05			6.8		270			2.60
06			7.3		265	---		2.90
07			9.1		250	4.6	110	2.8
08			9.8		230	5.1	105	3.7
09			285	10.2	225	5.5	105	3.7
10			310	11.0	200	5.8	105	4.4
11			400	12.2	<250	6.3	---	4.5
12			405	12.9	(250)	6.3	---	2.35
13			410	14.1	(250)	6.2	---	2.40
14			400	14.3	(250)	6.2	---	3.8
15			400	14.4	235	6.0	105	4.0
16			380	14.7	235	5.8	107	3.7
17			340	15.				

Table 55

Calcutta, India (22.9°N, 88.5°E)							July 1957
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs (M3000)F2
00		11.0	300			1.5	3.2
01		10.2	295				3.35
02		8.4	270				3.3
03		7.5	265				3.2
04		7.4	250			2.2	3.3
05		6.8	270	---	---	2.1	3.2
06	---	7.7	250	---	110	2.5	2.6
07	---	9.4	250	5.0	110	3.0	3.0
08	(300)	9.8	<245	5.5	110	3.2	3.5
09	(300)	10.8	230	6.0	105	3.4	5.2
10	(380)	11.5	<240	6.4	105	3.6	5.1
11	400	0	220	6.5	100	3.8	5.0
12	425	0	200	6.5	100	4.0	5.3
13	420	0	210	6.5	100	3.9	5.3
14	430	0	220	6.5	100	3.7	5.4
15	400	0	<240	6.4	105	3.5	3.6
16	390	0	250	6.0	100	3.2	(3.0)
17	350	0	250	5.5	105	3.0	3.1
18	320	0	260	5.1	110	2.6	3.3
19		13.0	300		110	2.0	3.0
20		12.0	315				3.0
21		11.7	310			2.6	3.1
22		11.5	310				3.1
23		11.2	300				3.1

Time: 90.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 57

Madras, India (13.0°N, 80.2°E)							July 1957
Time	*	foF2	h°F1	foF1	h°E	foE	foEs (M3000)F2
00		420	<10.5				2.50
01	(400)	<10.0					(2.60)
02	(400)	>9.0					(2.60)
03	(380)	(8.2)					(2.70)
04	320	<7.7					3.00
05	320	6.7					3.00
06	320	9.3					3.00
07	360	11.0					2.80
08	440	11.6					2.45
09	480	11.7					2.25
10	520	11.4					2.20
11	520	11.1					2.20
12	520	11.0					2.20
13	540	11.4					2.20
14	550	11.6					2.10
15	520	11.8					2.20
16	400	12.3					2.30
17	480	12.2					2.30
18	480	(12.2)					2.30
19	530	>11.5					2.15
20	(520)	10.7					(2.20)
21	(500)	<10.4					(2.20)
22	(480)	<10.5					(2.30)
23	420	(11.0)					(2.50)

Time: 75.0°E.

Sweep: 0.75 Mc to 21.5 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 59

Kodaikanal, India (10.2°N, 77.5°E)							July 1957
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs (M3000)F2
00		(9.6)	320				(2.65)
01		8.6	300				2.60
02		8.5	295				2.80
03		7.8	280				2.90
04		7.2	250				3.00
05		6.3	240				3.10
06		8.1	270	120	2.1	2.5	3.00
07		10.4	250	115	3.0	8.7	2.80
08	---	11.5	230	110	---	10.8	2.55
09	---	11.5	220	100	---	12.0	2.25
10	---	10.8	210	100	---	12.6	2.20
11	---	10.4	210	---	---	12.7	2.15
12	---	10.5	210	105	---	12.6	2.10
13	(450)	10.7	210	110	---	12.6	2.10
14	---	10.8	215	110	---	12.4	2.10
15	---	11.3	225	110	---	12.0	2.10
16	---	11.6	235	110	---	11.3	2.20
17	---	11.7	260	120	2.9	9.0	2.25
18	(11.8)	290	---	---	4.4	>2.30	
19		11.4	365				2.20
20		10.2	400				2.15
21		10.0	395				2.25
22		9.6	380		3.4	2.35	
23		9.8	360		2.9	2.50	

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 56

Bombay, India (19.0°N, 73.0°E)							July 1957
Time	*	foF2	h°F1	foF1	h°E	foE	foEs (M3000)F2
00							
01							
02							
03							
04							
05							
06		300	7.5				
07		320	9.3				
08:30		390	10.3				
09		400	10.7				
10		460	11.4				
11		490	11.9				
12		480	12.7				
13		480	13.1				
14		500	13.4				
15		490	13.5				
16		480	13.6				
17		400	13.7				
18		(380)	>13.3				
19		400	12.7				
20		(360)	(10.5)				
21		(440)	10.6				
22		420	9.4				
23							

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 58

Tiruchy, India (10.8°N, 78.0°E)							July 1957
Time	*	foF2	h°F1	foF1	h°E	foE	foEs (M3000)F2
00		(440)	(9.5)				
01		(400)	(8.8)				
02		400	8.4				
03		360	7.8				
04		330	7.8				
05		320	6.5				
06		340	9.1				
07		360	10.8				
08		440	11.7				
09		480	11.5				
10		520	10.9				
11		560	10.6				
12		560	10.6				
13		560	10.9				
14		520	11.1				
15		520	11.4				
16		520	>11.5				
17		480	>11.5				
18		440	>10.0				
19		440	9.6				
20		(510)	9.6				
21		(500)	>10.3				
22		---	>10.7				
23		---	9.9				

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 61

Dakar, French W. Africa (14.7°N, 17.4°W)	July 1956							
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	6.0	350			3.3	2.55		
01	5.5	325			3.0	2.62		
02	5.2	320			2.8	2.65		
03	5.1	300			2.4	2.62		
04	4.9	290			2.3	2.70		
05	4.8	<270				2.79		
06	6.6	250		125	1.80	2.2	3.20	
07	7.6	240	(4.10)	113	2.70	3.7	3.14	
08	8.4	230	4.55	111	3.25	4.5	2.94	
09	9.4	220	5.15	109	3.65	4.8	2.74	
10	10.2	210	5.30	109	3.80	4.4	2.61	
11	11.1	210	5.50	109	4.00	4.6	2.60	
12	11.9	210	5.50	109	4.00	4.4	2.56	
13	12.6	210	5.50	109	4.00	4.3	2.47	
14	12.8	215	5.50	109	3.85	4.0	2.52	
15	13.0	220	5.40	111	3.70	3.7	2.62	
16	12.8	230	5.00	111	3.40	4.0	2.71	
17	12.3	240	4.50	111	2.90		2.65	
18	11.8	260	4.00	119	2.10	3.3	2.59	
19	10.8	305				3.5	2.51	
20	9.0	385				3.4	2.37	
21	7.4	400				2.6	2.37	
22	6.7	<400				3.0	(2.43)	
23	6.5	370				3.4	2.50	

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 63

Delhi, India (28.6°N, 77.1°E)	October 1955							
Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6				3.10		
01	300	3.7				3.10		
02	280	3.7				3.25		
03								
04	300	3.5				3.10		
05	280	3.4				3.25		
06	240	5.4				3.60		
07	220	8.4				3.80		
08	240	9.1				3.60		
09	240	>9.3				3.60		
10	260	9.9				3.40		
11	280	11.0				3.25		
12	300	11.8				3.10		
13	280	12.8				3.25		
14	280	12.9				3.25		
15	280	13.1				3.25		
16	260	13.2				3.40		
17	240	>12.0				3.60		
18	240	7.2				3.60		
19	240	6.4				3.60		
20	280	5.3				3.25		
21	280	4.7				3.25		
22	300	3.9				3.10		
23	320	3.6				3.00		

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 65

Calcutta, India (22.9°N, 88.5°E)	October 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.4				3.05		
01	260	5.0				3.10		
02	250	4.7				3.15		
03	220	4.5				3.30		
04	225	3.6				3.25		
05	250	3.1				3.10		
06	250	4.5				3.15		
07	240	7.2	(235)	---	120	1.5	2.0	3.15
08	250	9.5	225	4.2	100	2.7	3.5	3.20
09	290	10.2	210	4.5	100	3.1		3.05
10	290	11.0	210	4.7	100	3.3		3.00
11	300	11.7	200	4.8	100	3.5		(3.05)
12	300	12.0	200	5.0	100	3.6		3.00
13	310	12.5	200	5.0	100	3.6		3.00
14	300	12.0	210	4.8	100	3.5		(3.10)
15	280	11.7	220	4.5	100	3.3		3.15
16	255	11.5	220	4.3	100	2.8	3.2	3.15
17	240	11.2	---	---	100	2.5	3.6	3.25
18	230	11.2			110	2.0	3.0	3.30
19	230	10.8				3.1	3.40	
20	205	10.3				3.2	3.35	
21	215	9.5				2.0	3.30	
22	240	7.2				3.25		
23	260	6.0				3.10		

Time: 90.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 62

Tananarive, Madagascar (10.9°S, 47.6°E)	July 1956							
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00					3.0	<265		3.04
01					2.7	---		2.08
02					2.7	---		2.92
03					2.7	---		3.16
04					2.4	---		2.83
05					2.4	---		2.06
06					2.7	---		2.80
07	260	7.6	240	(4.10)	113	2.70	3.7	3.22
08	290	8.4	230	4.55	111	3.25	4.5	3.20
09	330	9.4	220	5.15	109	3.65	4.8	3.14
10	300	10.2	210	5.30	109	3.80	4.4	3.12
11	420	11.1	210	5.50	109	4.00	4.6	3.11
12	430	11.9	210	5.50	109	4.00	4.4	2.97
13	440	12.6	210	5.50	109	4.00	4.3	2.07
14	430	12.8	215	5.50	109	3.85	4.0	2.88
15	410	13.0	220	5.40	111	3.70	3.7	2.93
16	385	12.8	230	5.00	111	3.40	4.0	2.92
17	370	12.3	240	4.50	111	2.90		3.11
18	390	11.8	260	4.00	119	2.10	3.3	3.02
19	10.8	305				3.5		3.11
20	9.0	385				3.4		3.17
21	7.4	400				2.6		3.06
22	6.7	<400				3.0		3.11
23	6.5	370				3.4		3.22

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 63

Ahmedabad, India (23.0°N, 72.6°E)	October 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.5						3.00
01	270	4.4						3.00
02	260	4.4						3.15
03	240	4.2						3.35
04	235	3.3						3.40
05	250	3.0						3.15
06	255	4.2						3.20
07	235	0.2	---	---	114	2.2	3.6	3.55
08	235	>9.0	225	4.0	107	2.0	4.6	3.55
09	250	9.1	210	4.4	105	3.1	6.0	3.30
10	275	10.2	210	4.8	105	3.3	5.3	3.15
11	200	11.4	210	4.9	105	3.4	6.0	3.00
12	300	12.8	220	4.9	105	3.5	4.0	2.85
13	325	14.3	230	5.0	105	3.5	4.8	2.90
14	305	14.6	230	5.0	105	3.3	4.0	3.10
15	275	14.6	240	4.6	107	3.2	4.0	3.15
16	255	14.4	240	4.3	110	2.8	4.0	3.25
17	240	14.2	---	3.4	115	2.1	4.2	3.35
18	225	13.7						4.2
19	215	12.9						3.6
20	215	10.9						3.4
21	230	9.5						3.05
22	240	6.1						3.0
23	300	4.8						3.3

Time: 75.0°E.

Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 65

Sao Paulo, Brazil (23.5°S, 46.5°W)	October 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	12.6						3.2
01	240	>13.0						3.4
02	220	11.2						3.5
03	220	7.8						3.35
04	230	6.6						3.2
05	230	6.0						3.3
06	220	7.2						3.4
07	230	7.8	220	---	110	2.6		3.4
08	260	8.5	210	---	100	3.0		3.2
09	280	9.7	200	---	100	3.2		2.9
10	310	10.4	200	---	100	3.3		---
11	310	11.2	200	4.8	100			
12	320	12.0	200	4.8	100			(2.7)
13	310							

Table 67\*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00								
01								
02								
03								
04								
05	---	E						
06	---	E						
07	330	2.0						
08	250	3.0	220	2.8	130	2.2		3.1
09	250	4.6	230	3.3	130	2.3		3.3
10	260	4.9	230	3.5	130	2.4		3.4
11	260	5.2	230	3.5	130	2.5		3.3
12	270	5.6	240	3.6	130	2.6		3.3
13	260	5.4	230	3.5	130	2.5		3.3
14	250	5.2	230	3.2	130	2.3		3.3
15	250	5.0	230	2.4	130	2.0		3.25
16	250	4.6	230	2.3	---	---		3.2
17	250	3.8						3.1
18	270	3.2						3.1
19	290	2.6						3.0
20	300	2.2						3.0
21	340	1.9						3.0
22	---	E						3.0
23	---	E						

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

\*Observations taken on a 19-hour working schedule.

Table 68\*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00								
01								
02								
03								
04								
05	---	E						
06	---	E						
07	320	2.0						
08	250	3.8	240	(1.7)	---	---		
09	250	4.6	230	3.4	130	2.1		3.3
10	250	4.9	240	3.4	130	2.5		3.4
11	270	5.2	240	3.6	130	2.6		3.3
12	270	5.4	240	3.6	130	2.7		3.2
13	260	5.3	240	3.5	130	2.5		3.3
14	260	5.4	240	3.2	130	2.4		3.2
15	250	5.2	240	3.2	130	1.8		3.3
16	(260)	4.8	240	---	---	---		3.2
17	260	4.2	240	---	---	---		3.1
18	270	3.2						3.0
19	310	2.4						2.9
20	340	2.0						3.0
21	350	2.0						3.0
22	380	1.9						3.0
23	---	E						

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

\*Observations taken on a 19-hour working schedule.

Table 69\*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	4.1	230	2.8	125	2.0		3.1
06	300	4.5	230	3.4	115	2.4		3.1
07	320	4.7	230	3.8	110	2.7		3.1
08	350	5.1	230	4.1	110	3.0		3.0
09	340	5.5	220	4.2	110	3.2		3.0
10	340	5.5	220	4.3	110	3.2		3.1
11	350	5.5	220	4.3	110	3.2		3.0
12	330	5.6	230	4.3	110	3.3		3.1
13	320	5.6	220	4.2	110	3.2		3.0
14	330	5.5	220	4.2	110	3.1		3.0
15	320	5.6	230	4.0	110	2.9		3.1
16	310	5.6	230	3.9	115	2.8		3.1
17	290	5.7	240	3.6	115	2.5		3.05
18	290	5.6	240	3.3	125	2.2		3.1
19	250	5.4	---	---	---	1.7		3.1
20	250	5.6						3.0
21	260	4.7						3.0
22	---	4.2						3.0
23	---	3.6						2.9

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

\*Observations taken on a 19-hour working schedule.

Table 70\*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	3.8	240	---	110	2.1		3.1
06	320	4.2	240	3.5	110	2.4		3.1
07	350	4.6	230	3.7	110	2.6		3.0
08	350	5.0	220	4.0	110	2.8		2.9
09	340	5.2	220	4.1	110	3.0		3.0
10	340	5.4	220	4.1	110	3.1		3.0
11	340	5.5	210	4.2	110	3.1		3.0
12	330	5.6	210	4.2	110	3.1		3.0
13	320	5.6	220	4.1	110	3.1		3.1
14	320	5.6	220	4.1	110	3.0		3.1
15	310	5.5	210	4.0	110	2.8		3.0
16	310	5.5	220	3.8	110	2.6		3.0
17	300	5.7	240	3.5	120	2.4		3.1
18	270	5.7	250	3.0	130	2.0		3.1
19	260	5.7	250	2.5	140	1.5		3.1
20	250	5.2						1.7
21	250	4.8						3.0
22	260	4.1						3.0
23	280	3.6						2.8

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

\*Observations taken on a 19-hour working schedule.

Table 71

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.2						2.7
01	250	3.9						2.8
02	250	3.1						2.8
03	255	2.7						2.9
04	250	2.7						2.9
05	250	3.4	---	---	---	1.9		3.0
06	250	5.3	225	---	115	2.2	2.9	3.0
07	300	6.0	220	4.0	110	2.8	2.8	2.8
08	340	6.7	210	4.4	110	3.1	2.5	2.6
09	375	7.8	210	4.5	110	3.3	2.3	2.5
10	410	9.0	200	4.5	110	3.5	2.4	2.4
11	390	10.0	200	4.6	110	3.5	2.4	2.4
12	360	10.4	200	4.5	110	3.5	2.4	2.4
13	350	10.1	200	4.5	110	3.4	2.5	2.5
14	360	9.3	220	4.5	110	3.3	2.4	2.4
15	360	6.6	225	4.3	110	3.0	2.4	2.4
16	330	8.9	240	4.0	115	2.4	3.0	2.5
17	290	8.6	250	---	---	2.0	2.6	2.5
18	265	8.0				2.1		2.6
19	280	7.6						2.6
20	250	8.1						2.8
21	225	7.1						2.9
22	220	5.5						3.0
23	250	4.7						2.7

Time: 0.0°.

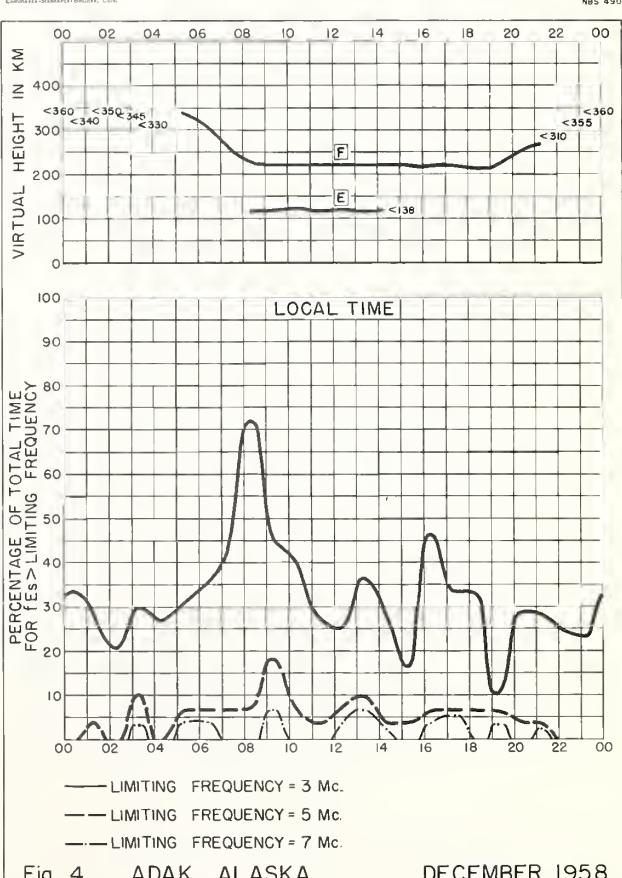
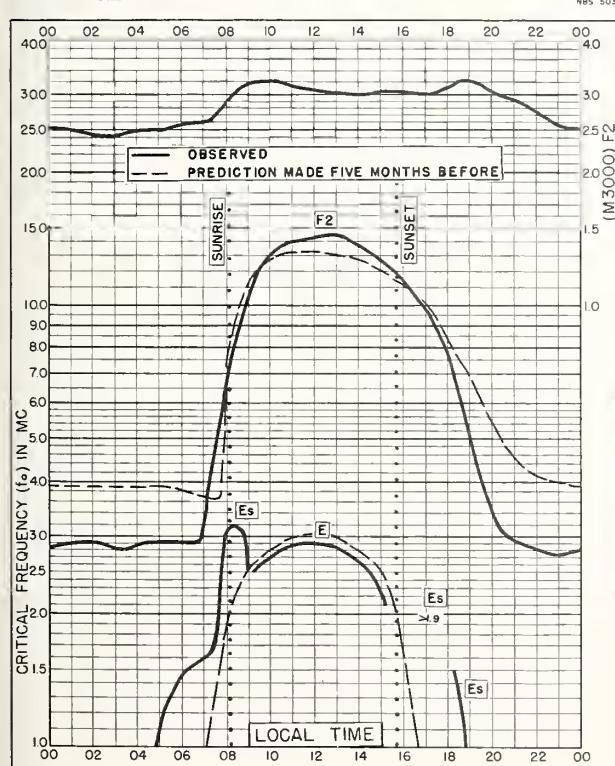
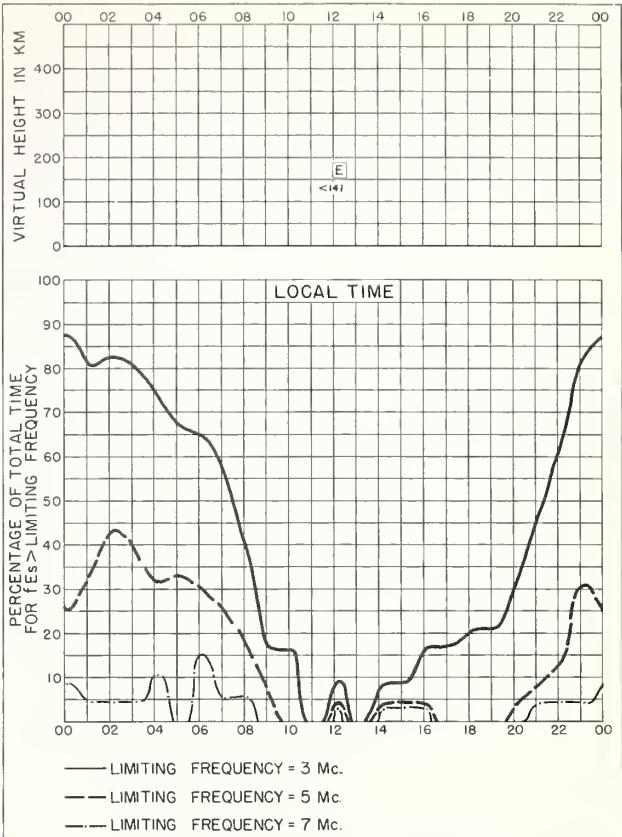
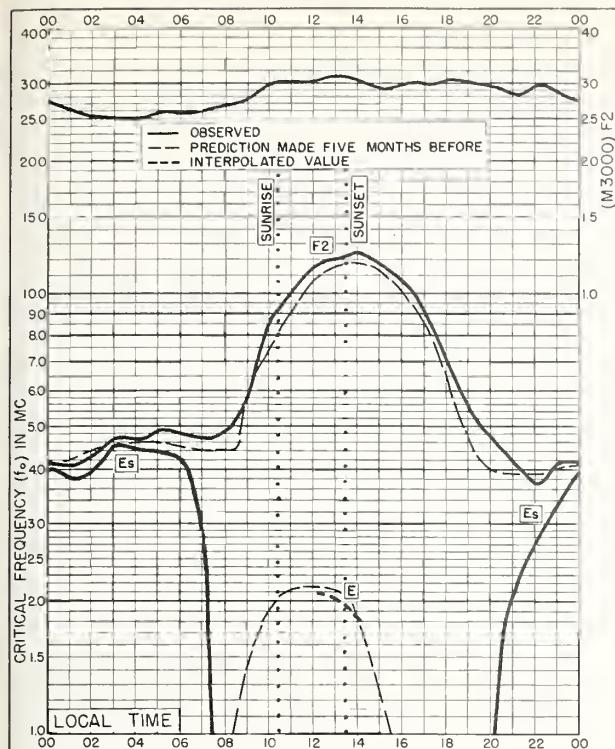
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

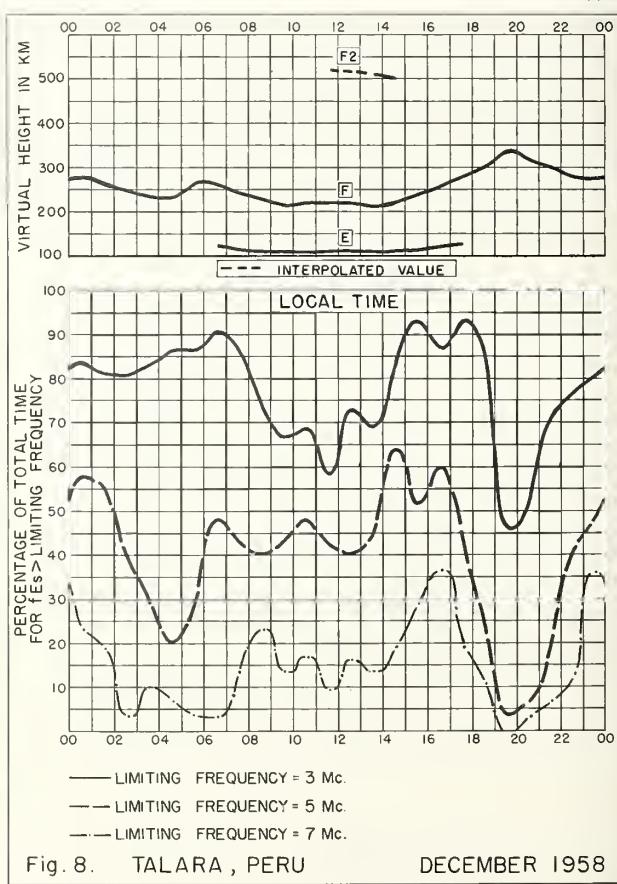
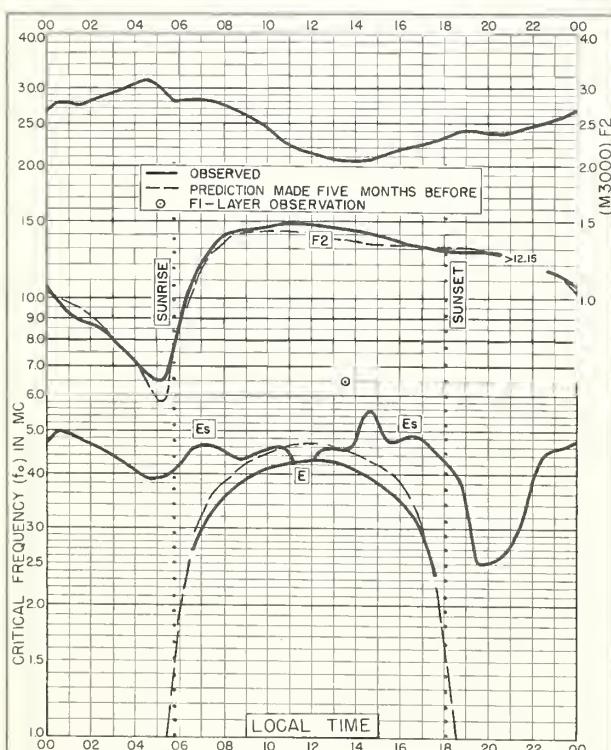
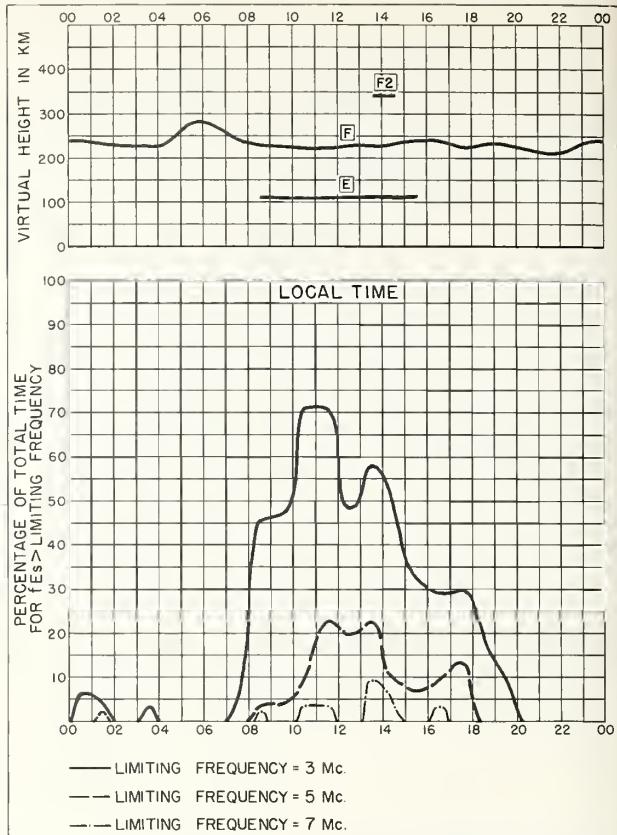
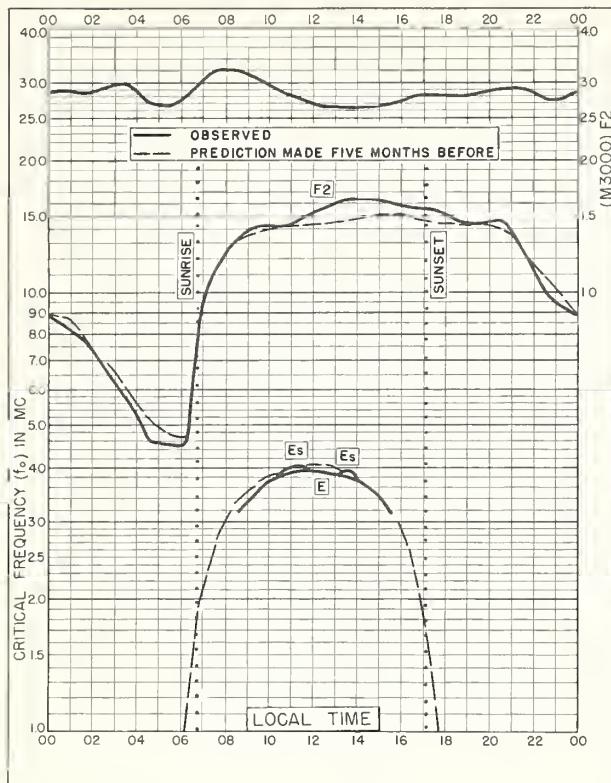
Table 72

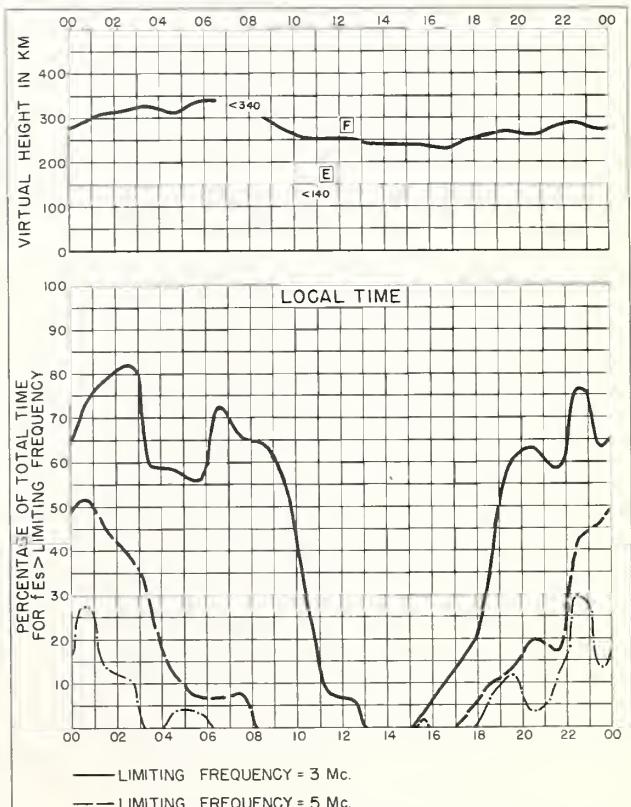
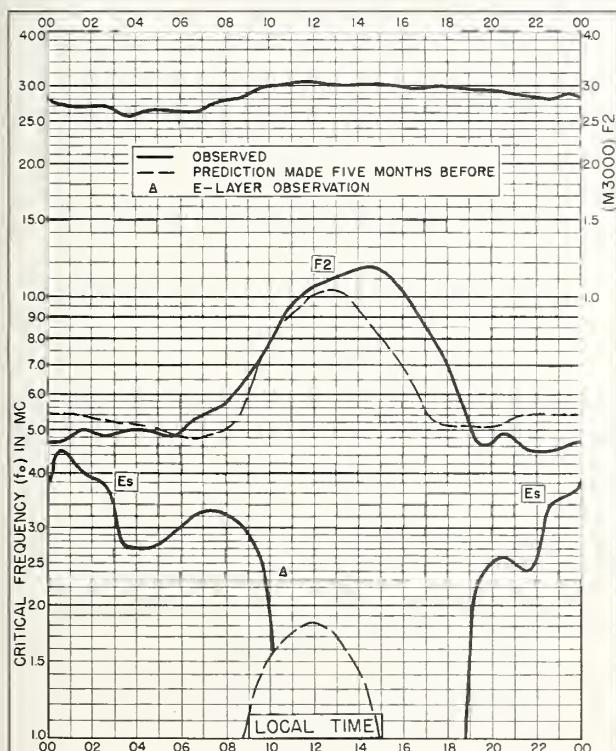
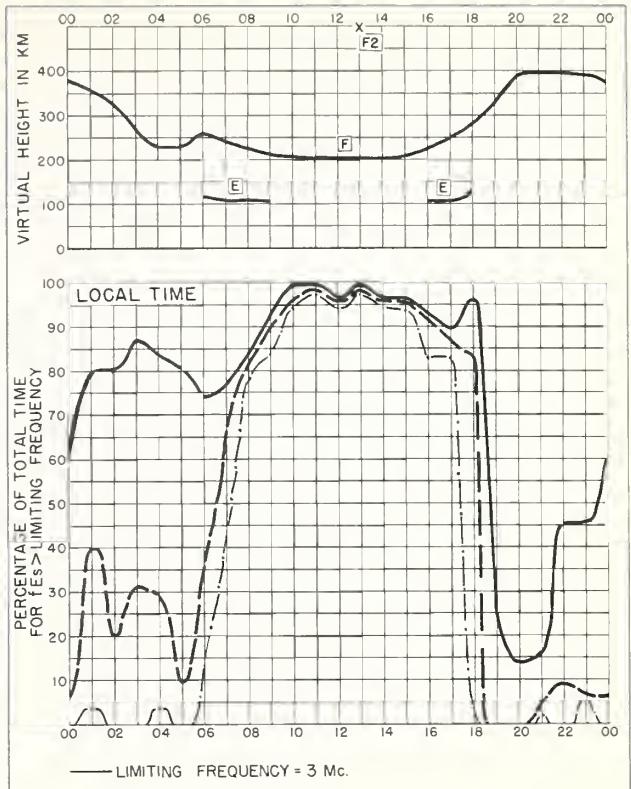
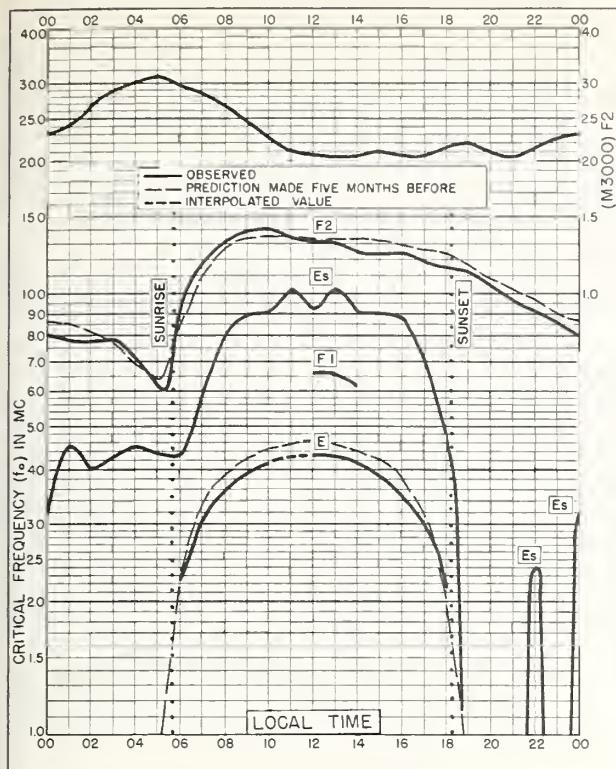
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.4						2.7
01	(270)	3.9						2.7
02	(260)	3.5						2.8
03	265	3.4						2.8
04	250	3.2						3.0
05	240	4.0						3.0
06	250	6.7	230	---	115	2.1	2.8	3.1
07	270	7.6	220	---	110	2.9	3.4	2.9
08	300	8.4	215	4.3	110	3.2	4.0	2.6
09	340	9.5	200	4.5	110	3.5	3.9	2.5
10	400	11.0	200	4.6	110	3.6	3.6	2.4
11	400	11.5	200	4.8	110	3.6	3.7	2.4
12	390	12.1	210	4.5	110	3.7	3.7	2.3
13	365	12.6	210	4.6	110	3.6	4.0	2.4
14	330	12.4	220	4.5	110	3.3	3.6	2.5
15	330	11.8	220	---	110	3.0	3.7	2.5
16	330	11.0	240	---	110	2.5	3.3	2.6
17	270	11.6	---	---	---	---	2.8	2.6
18	255	11.0						2.4
19	240	10.9						2.8
20	230	>9.5						3.0
21	220	9.2						2.95
22	220	6.5						3.0
23	220	5.0						2.7

Time: 0.0°.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.







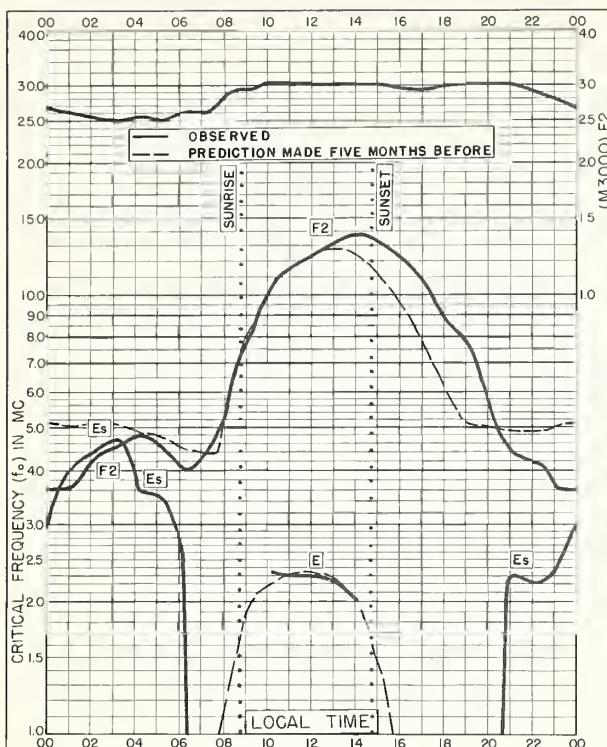


Fig. 13. FAIRBANKS, ALASKA  
64.9°N, 147.8°W      NOVEMBER 1958

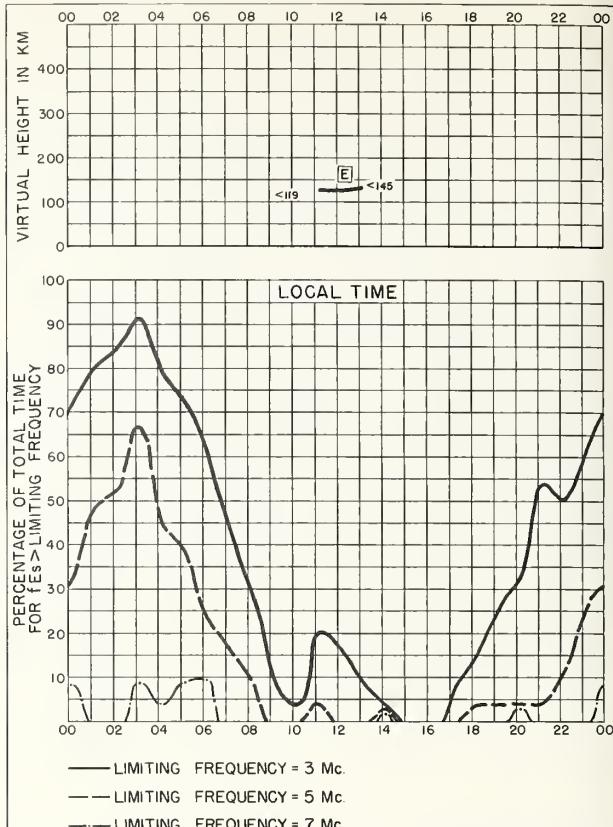


Fig. 14. FAIRBANKS, ALASKA      NOVEMBER 1958

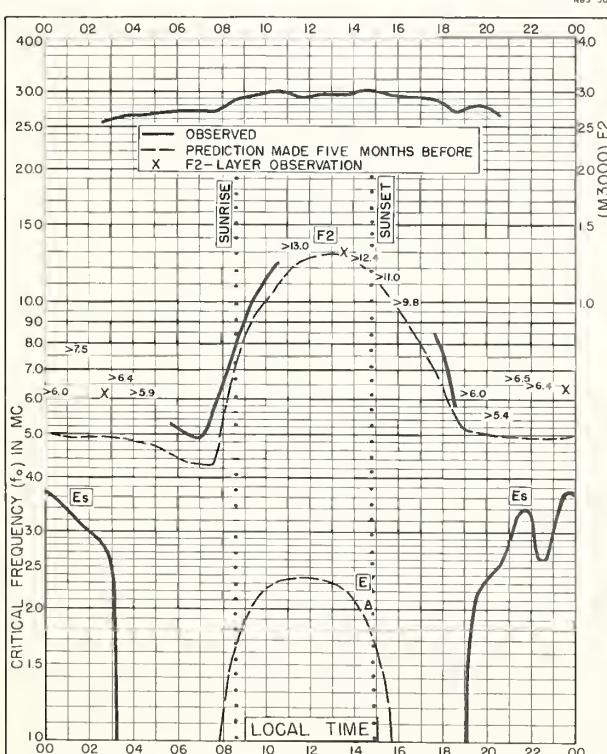


Fig. 15. REYKJAVIK, ICELAND  
64.1°N, 21.8°W      NOVEMBER 1958

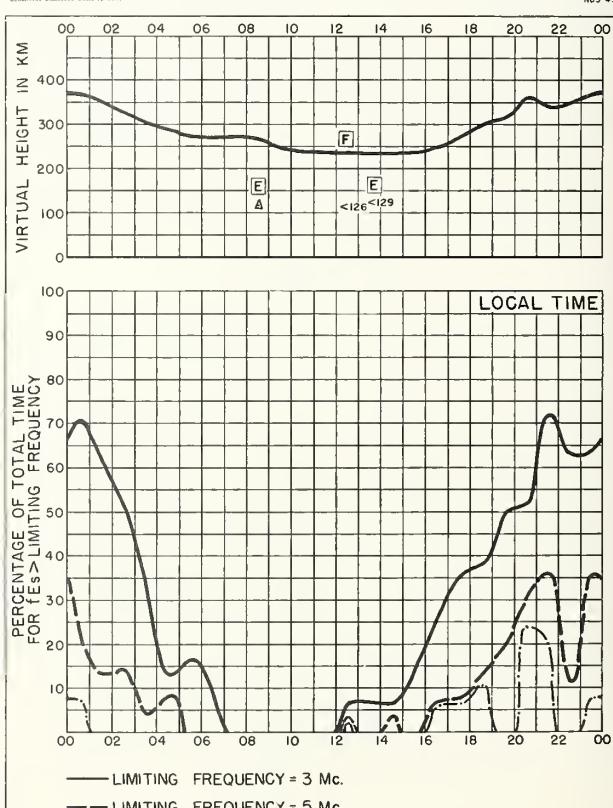


Fig. 16. REYKJAVIK, ICELAND      NOVEMBER 1958

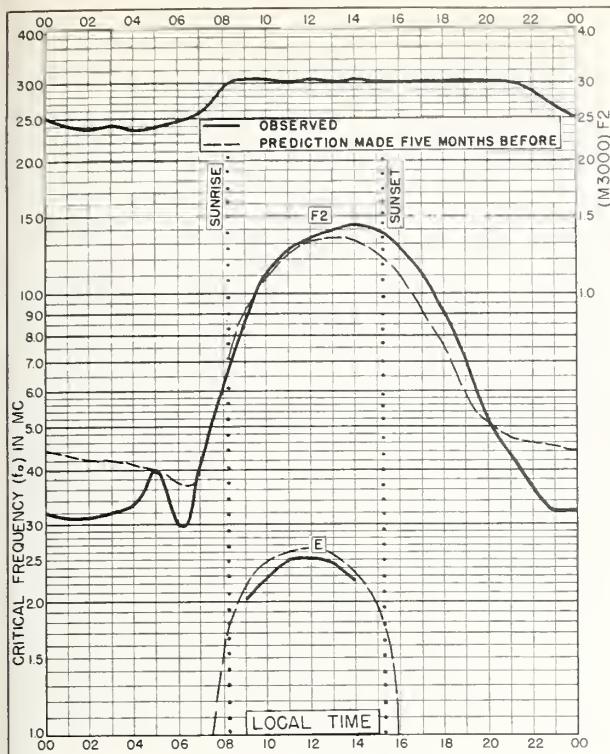


Fig. 17. ANCHORAGE , ALASKA  
61.2°N , 149.9°W      NOVEMBER 1958

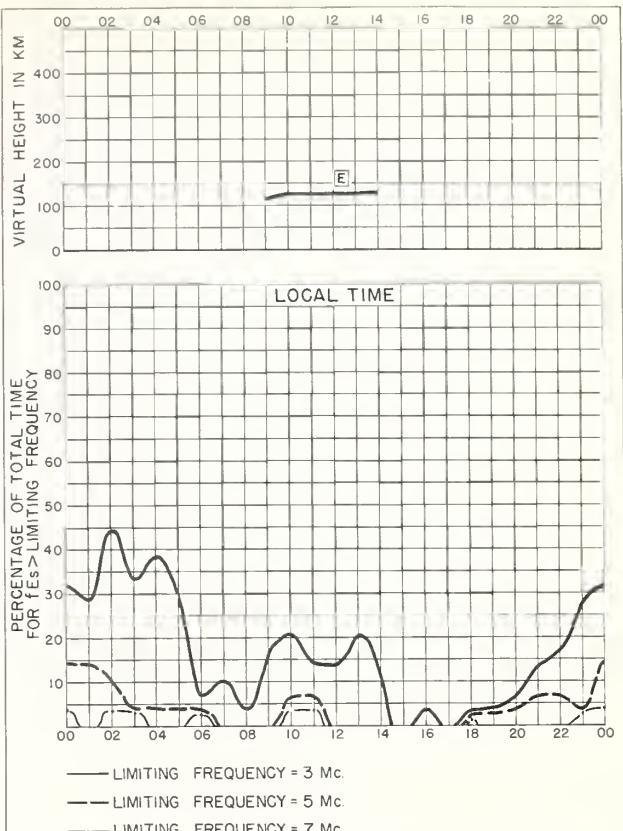


Fig. 18. ANCHORAGE , ALASKA      NOVEMBER 1958

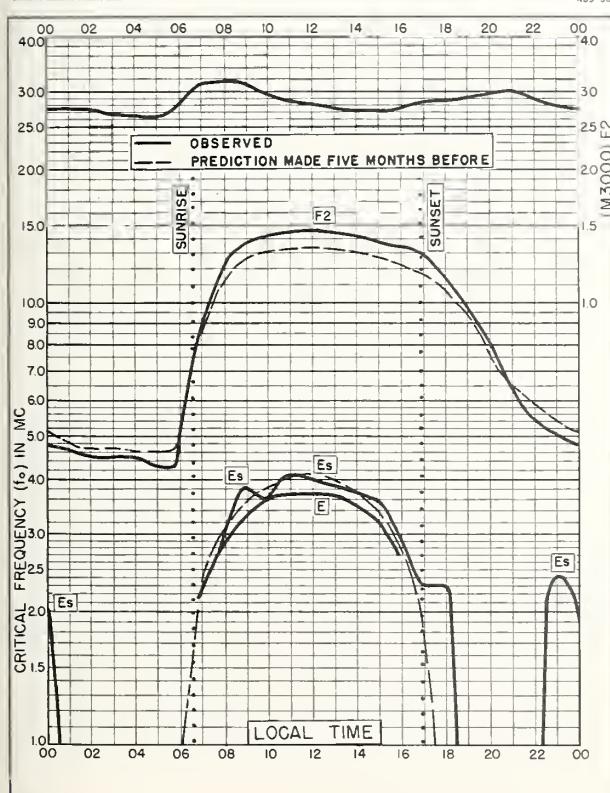


Fig. 19. WHITE SANDS , NEW MEXICO  
32.3°N , 106.5°W      NOVEMBER 1958

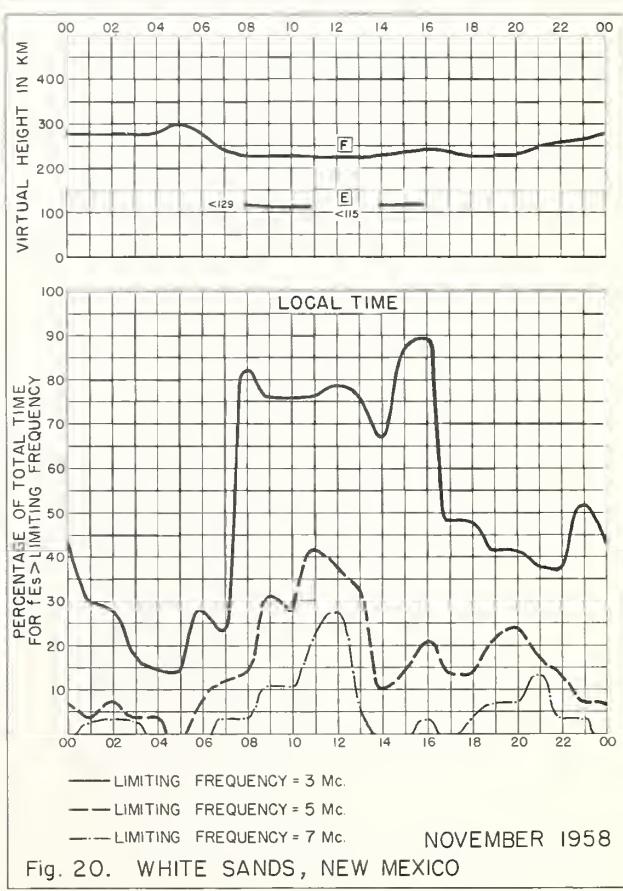
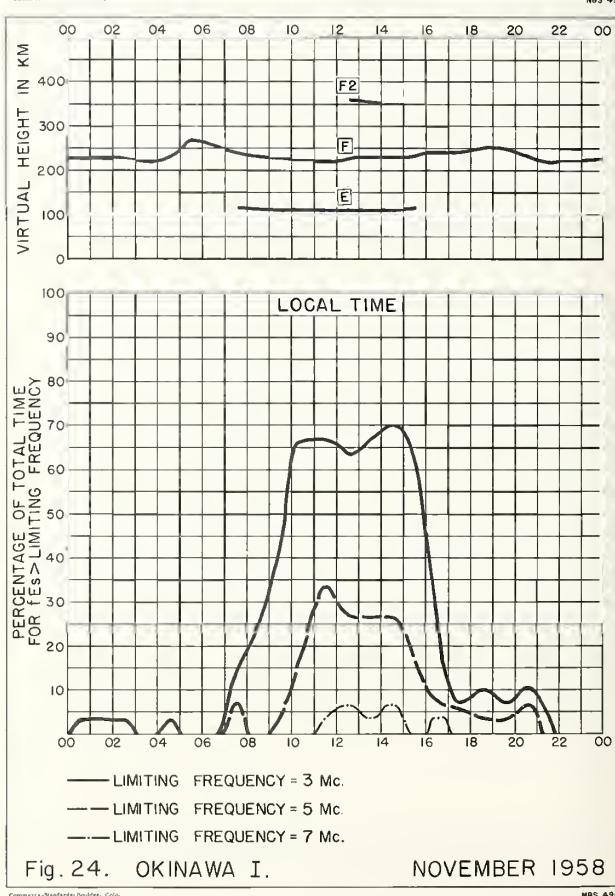
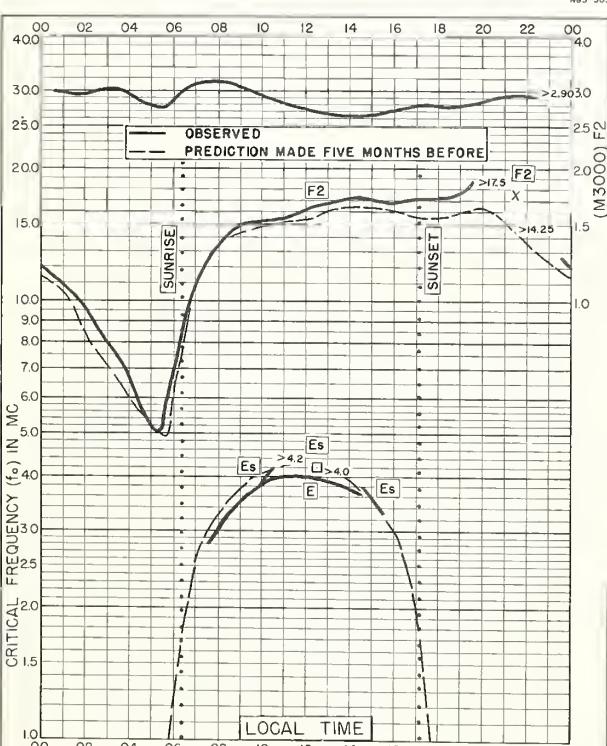
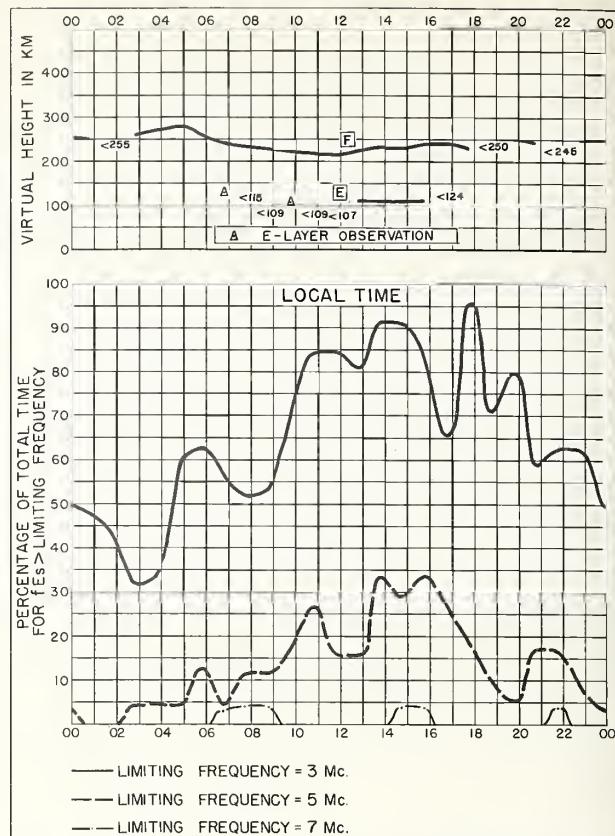
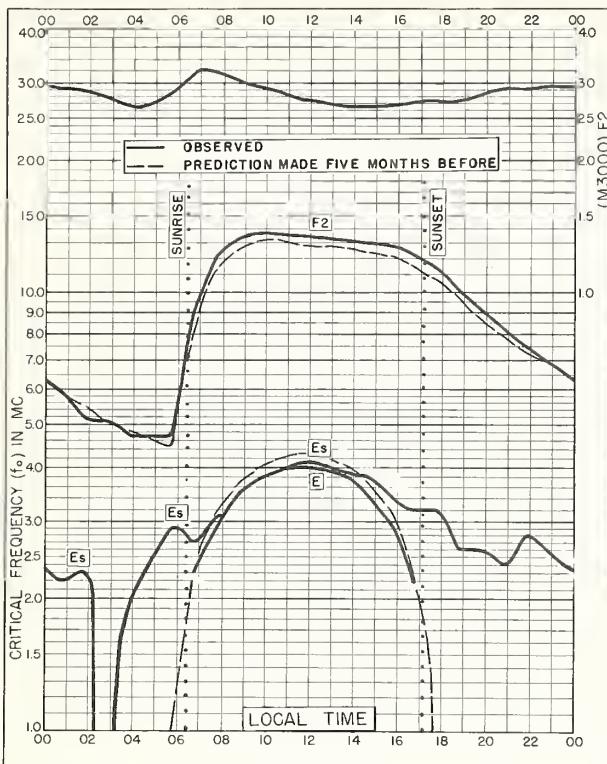
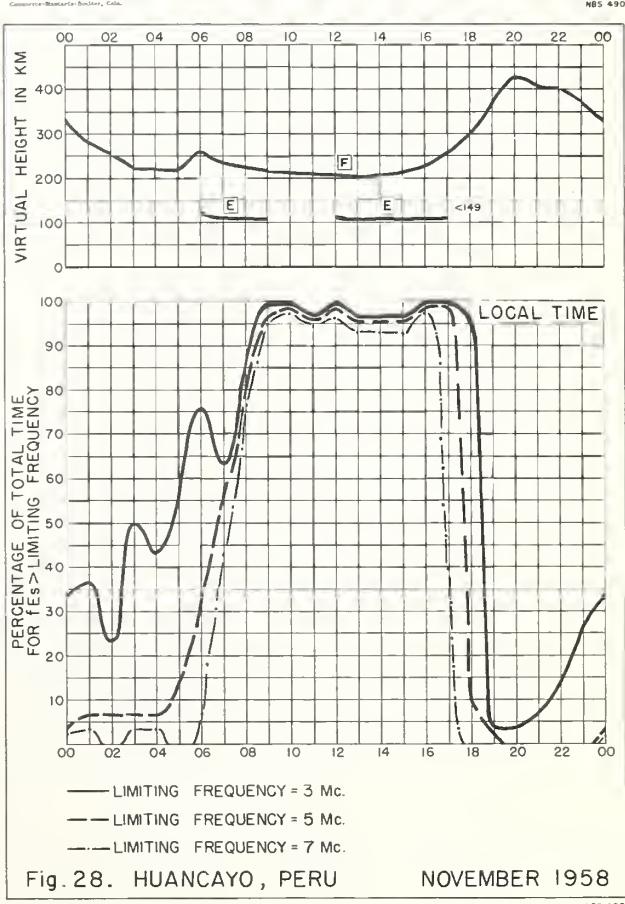
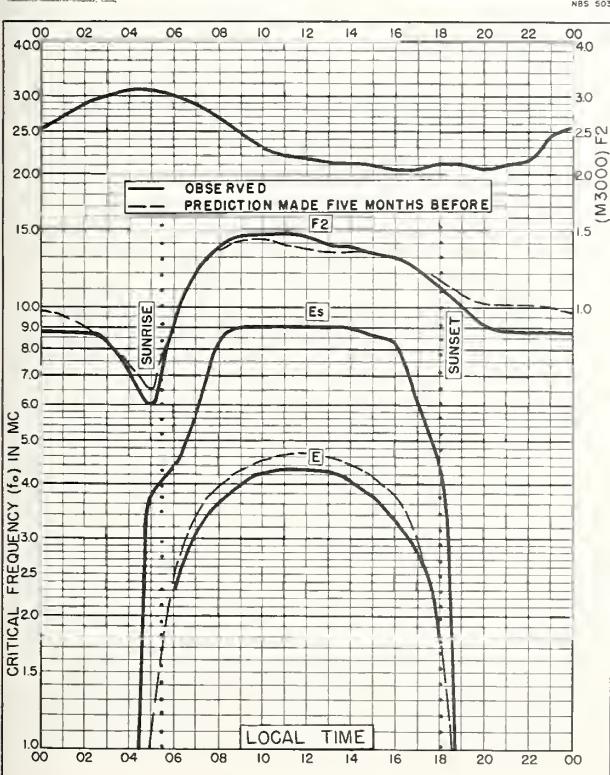
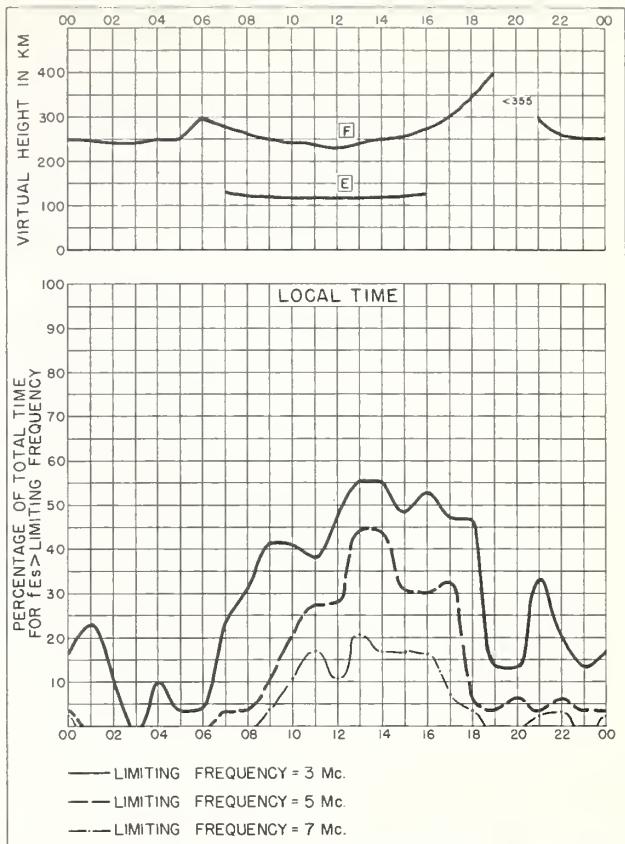
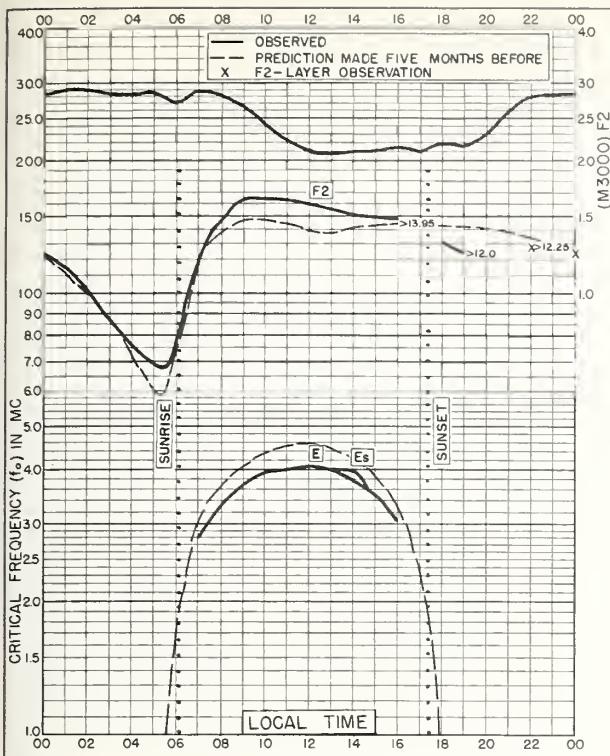
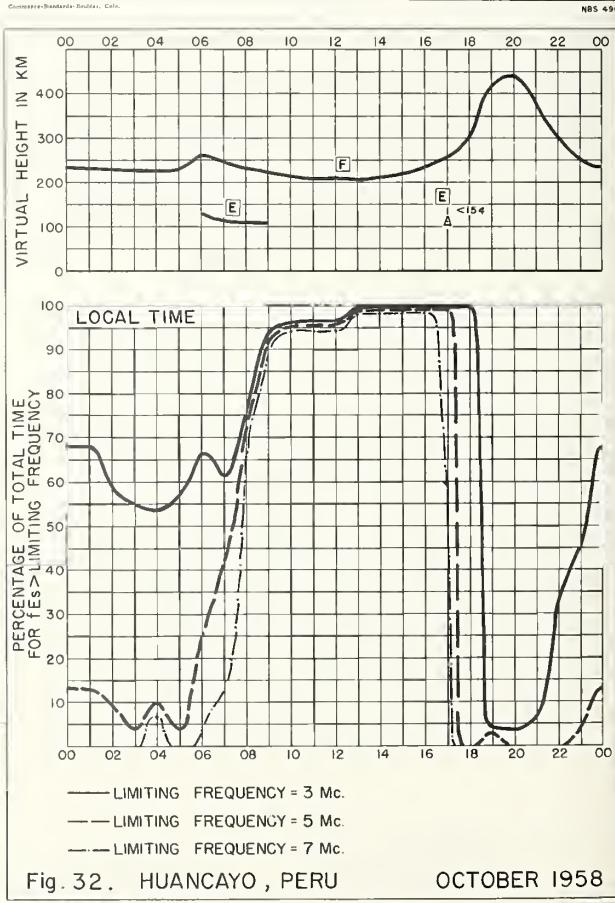
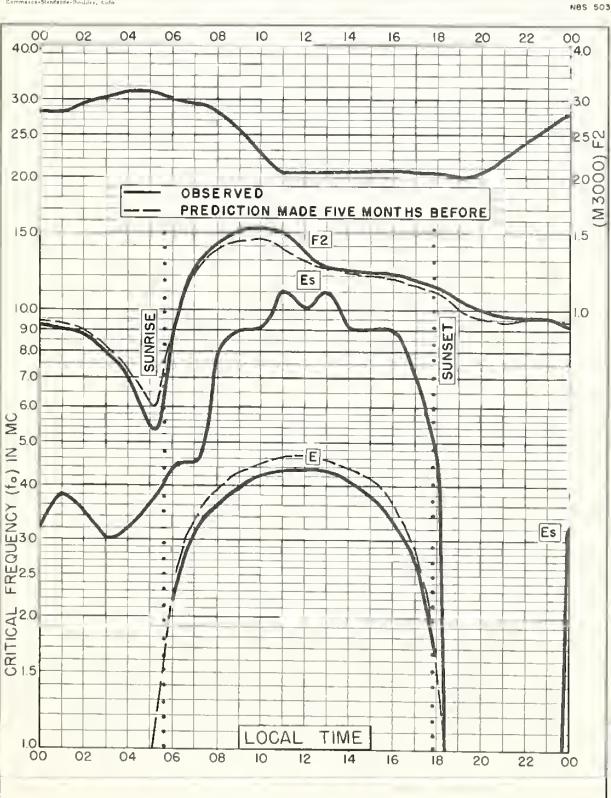
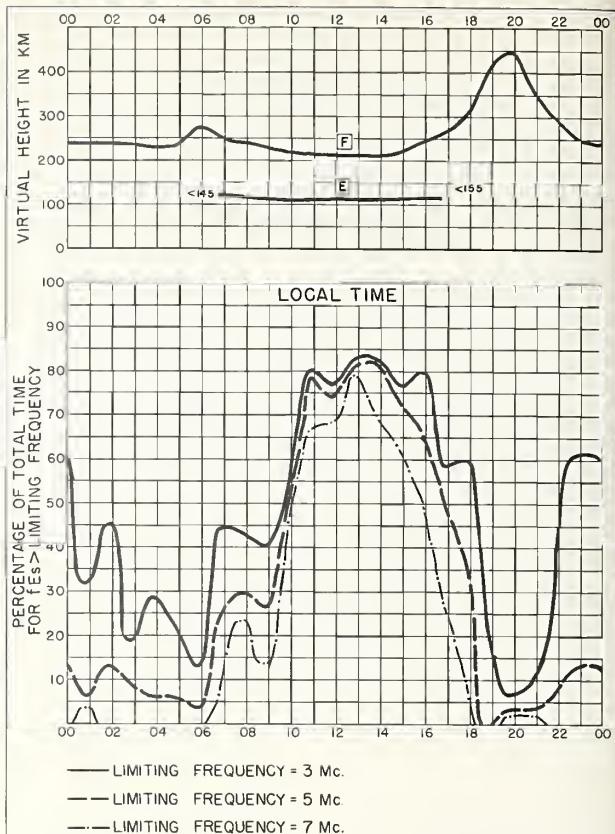
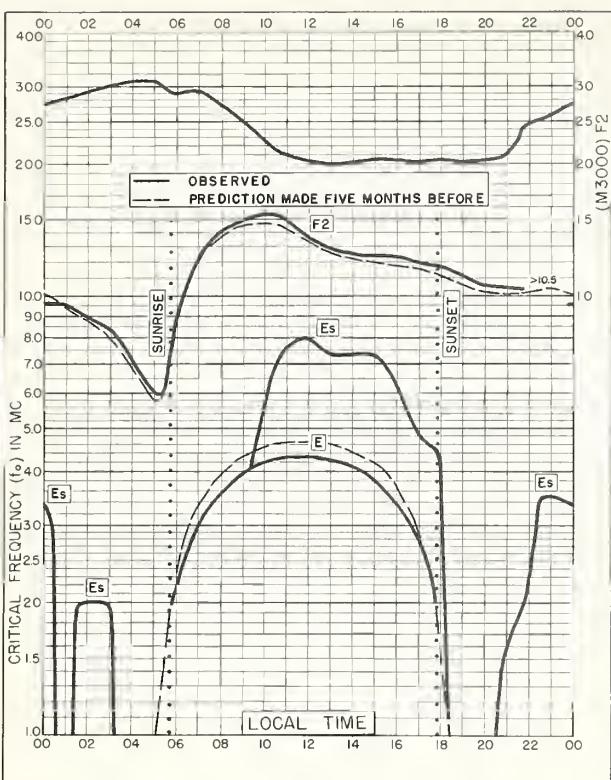


Fig. 20. WHITE SANDS , NEW MEXICO      NOVEMBER 1958







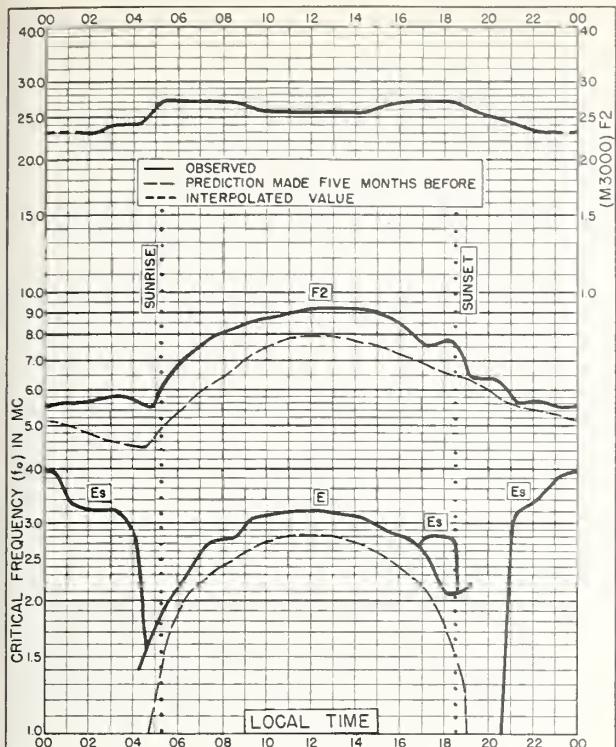


Fig. 33. TROMSO , NORWAY  
69.7°N, 19.0°E      SEPTEMBER 1958

Compton-Benneau-Bailey, Col.

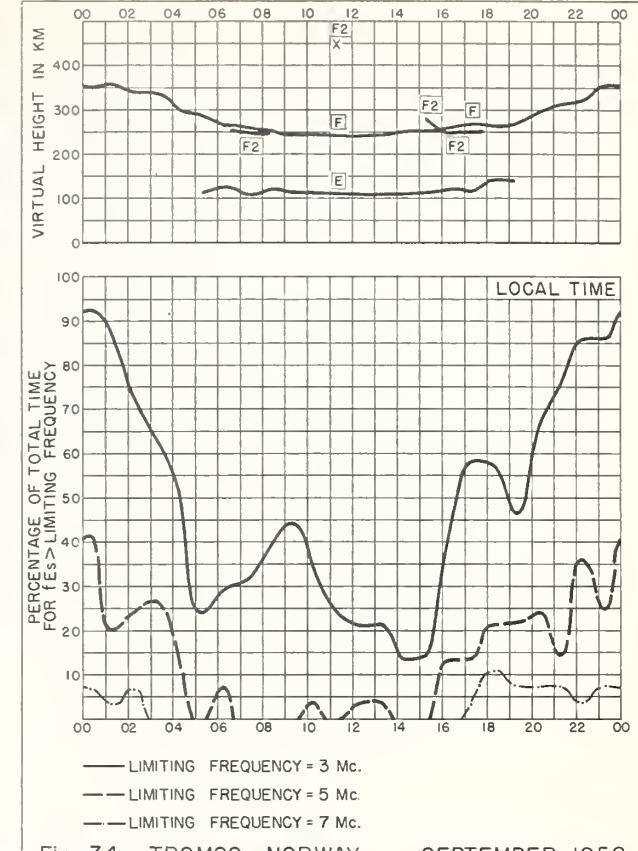


Fig. 34. TROMSO , NORWAY      SEPTEMBER 1958

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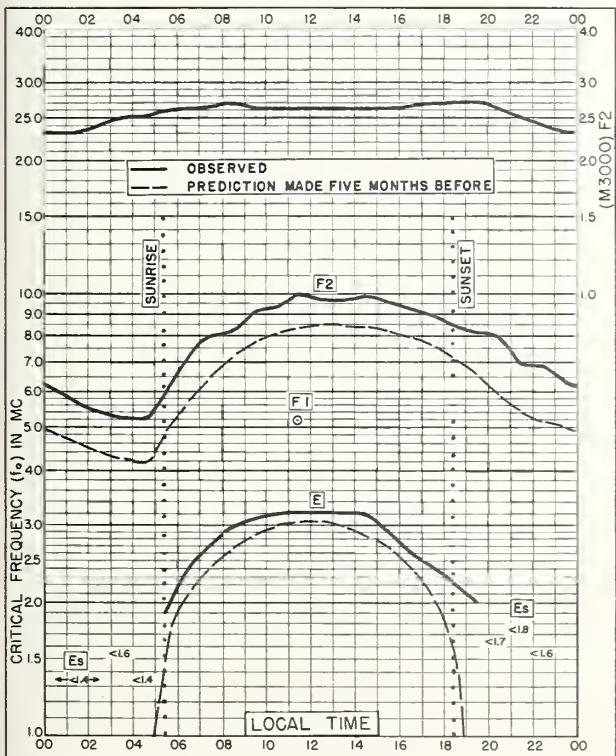


Fig. 35. LULEA , SWEDEN  
65.6°N, 22.1°E      SEPTEMBER 1958

Compton-Benneau-Bailey, Col.

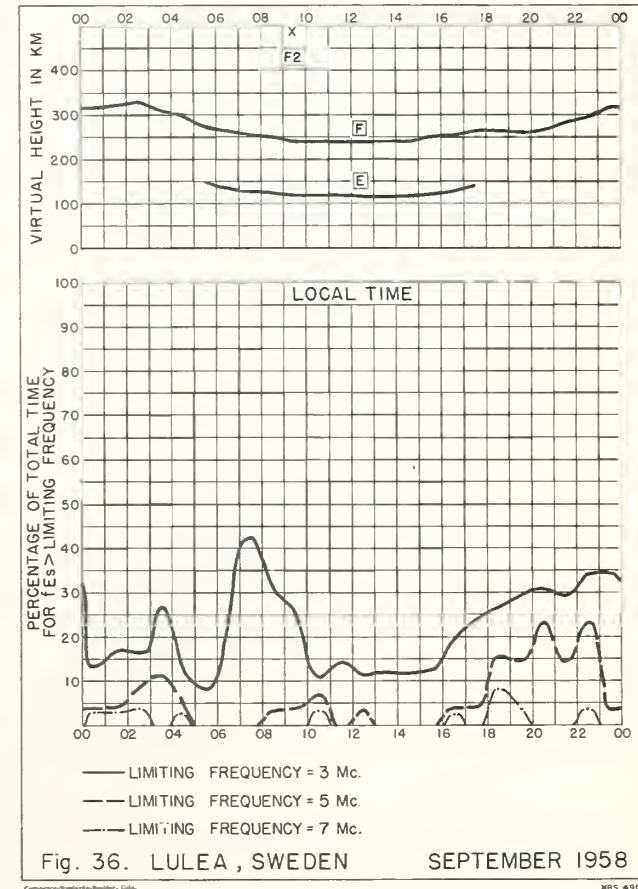
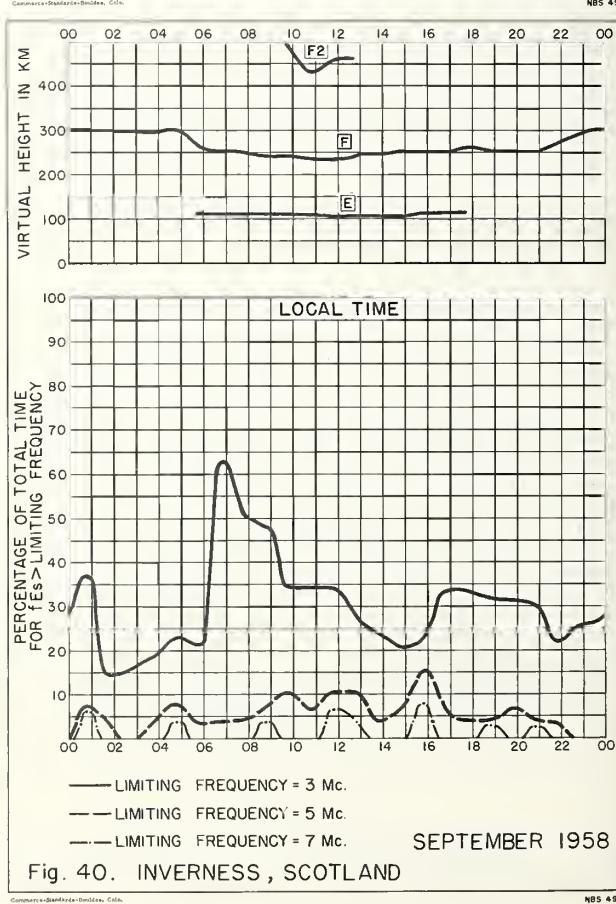
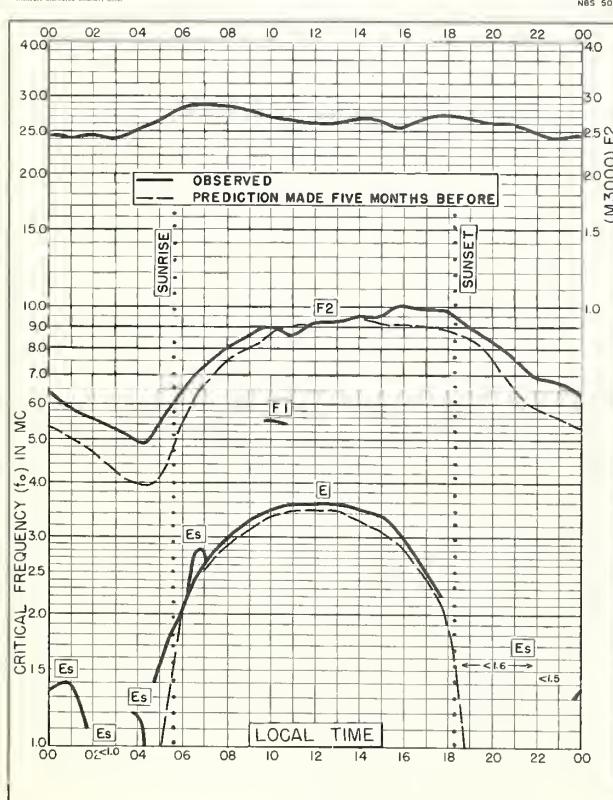
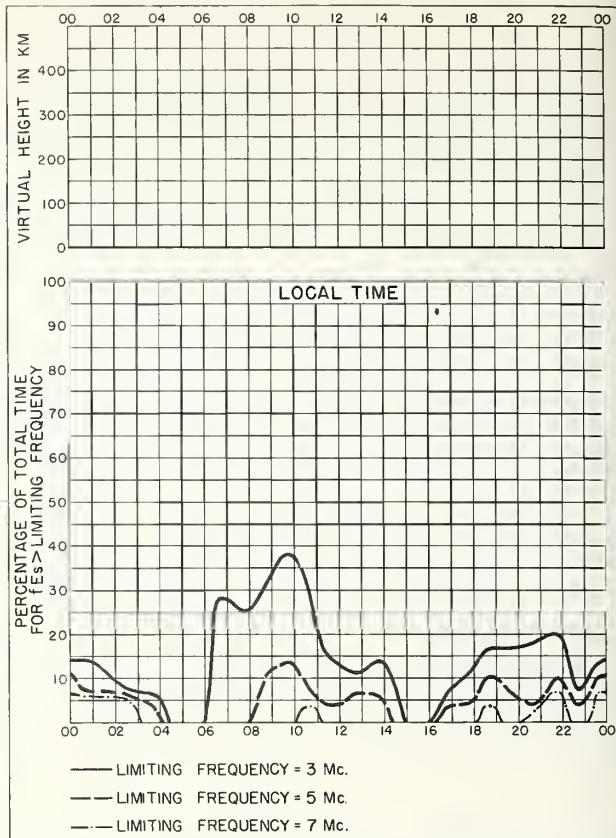
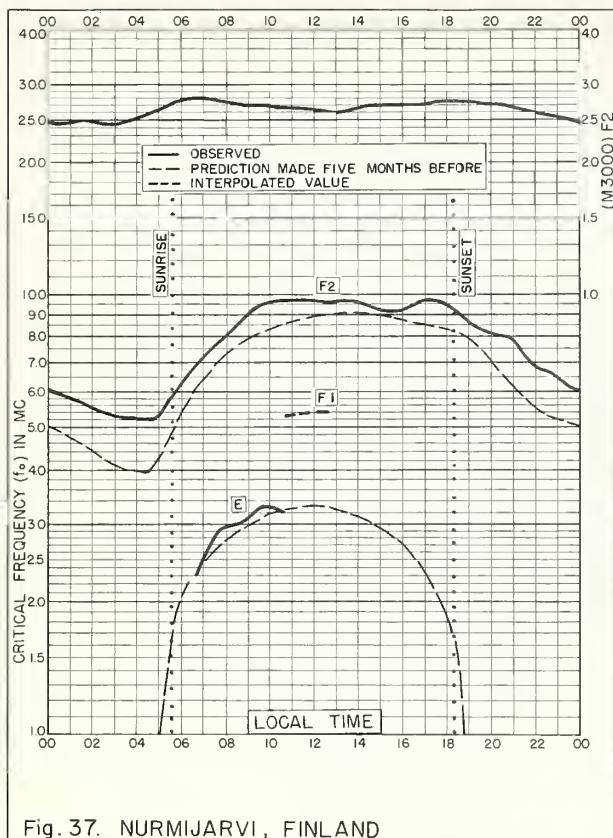


Fig. 36. LULEA , SWEDEN      SEPTEMBER 1958

Compton-Benneau-Bailey, Col.

NBS 490



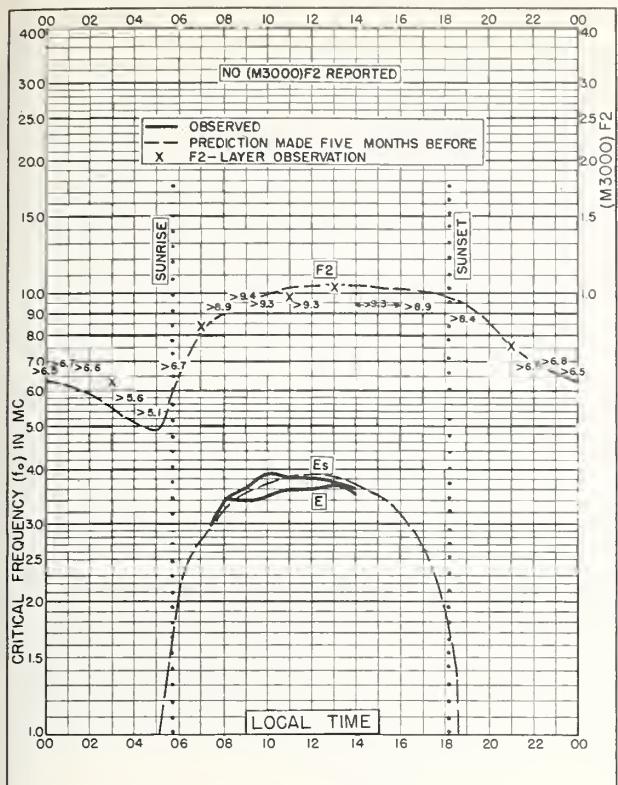


Fig. 41. GRAZ, AUSTRIA  
47.1°N, 15.5°E SEPTEMBER 1958

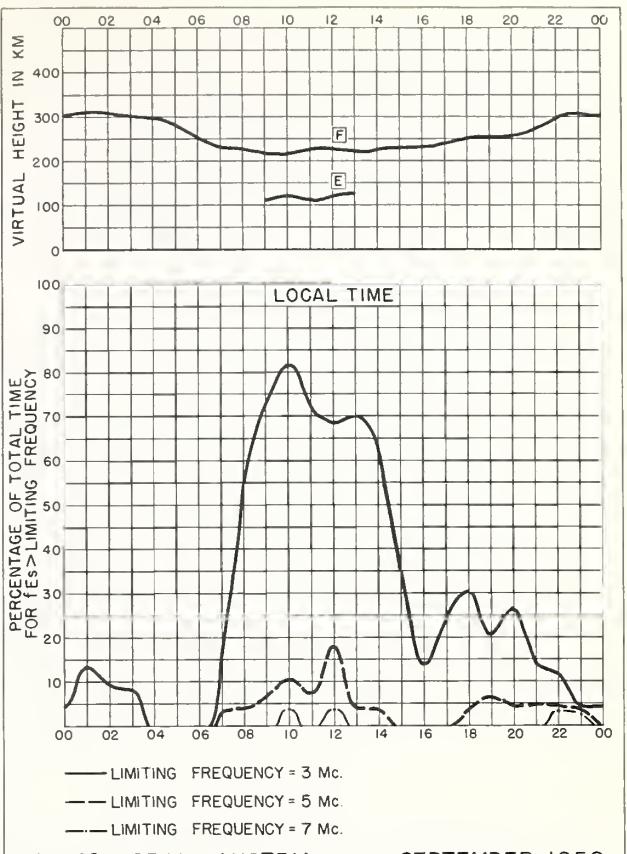


Fig. 42. GRAZ, AUSTRIA SEPTEMBER 1958

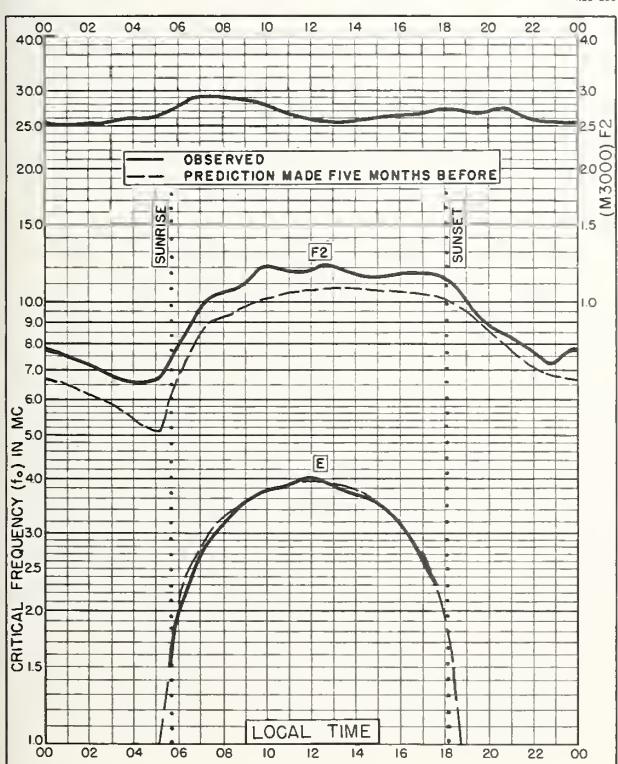


Fig. 43. MONTE CAPELLINO, ITALY  
44.6°N, 9.0°E SEPTEMBER 1958

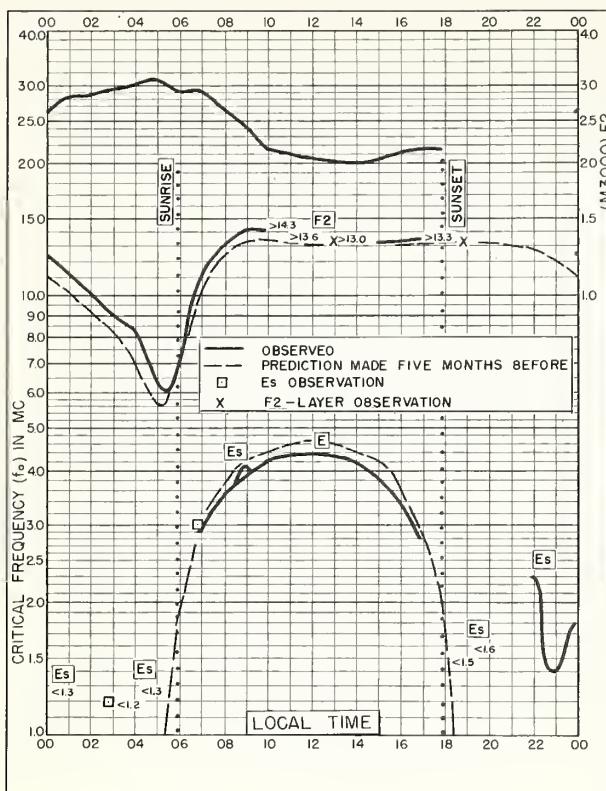


Fig. 44. SINGAPORE, BRITISH MALAYA  
1.3°N, 103.8°E SEPTEMBER 1958

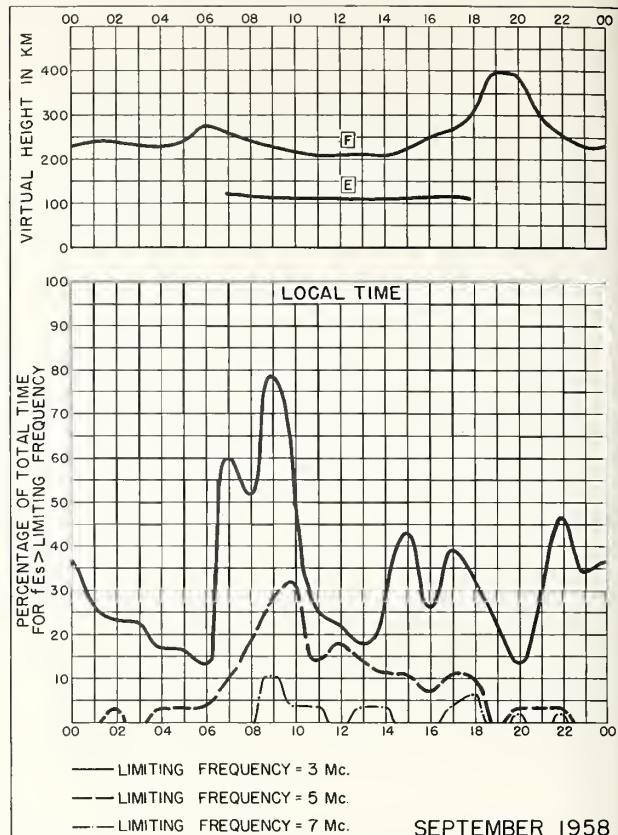


Fig. 45.. SINGAPORE, BRITISH MALAYA

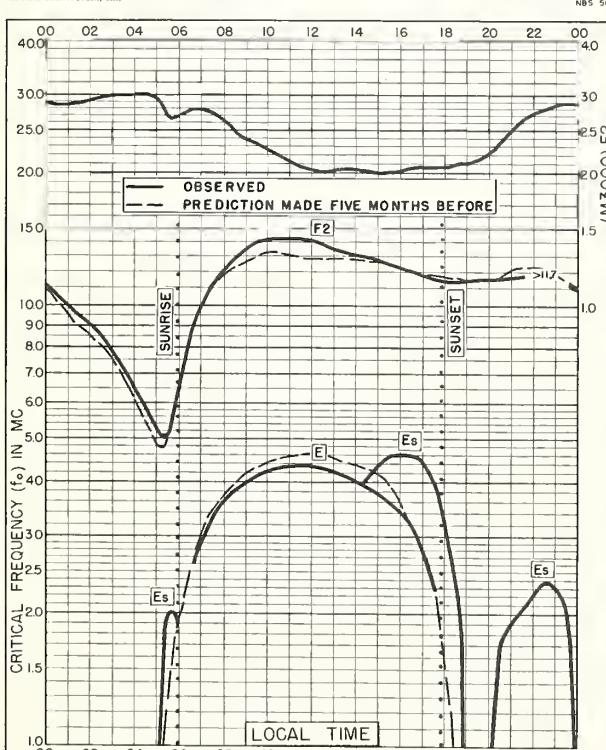
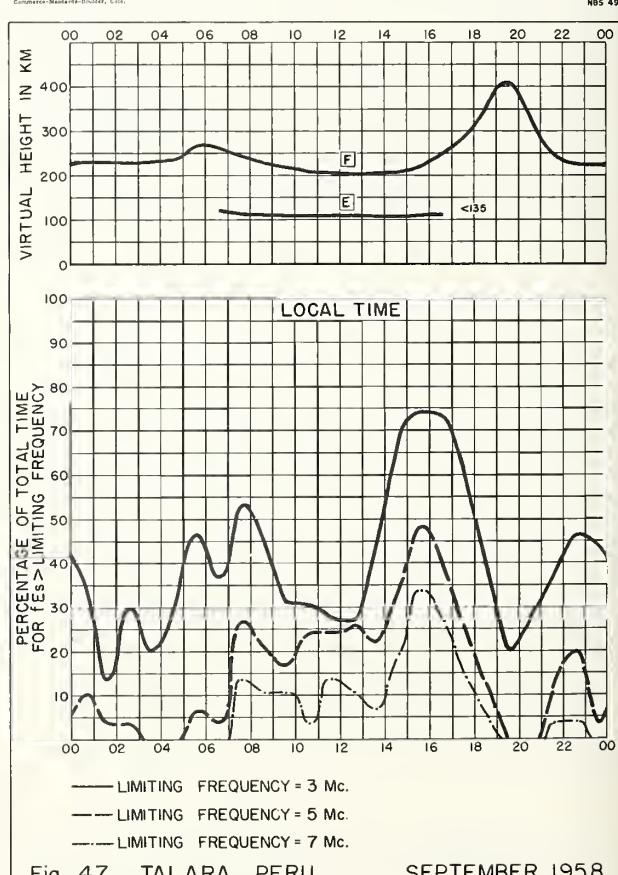


Fig. 46. TALARA, PERU  
4.6°S, 81.3°W SEPTEMBER 1958



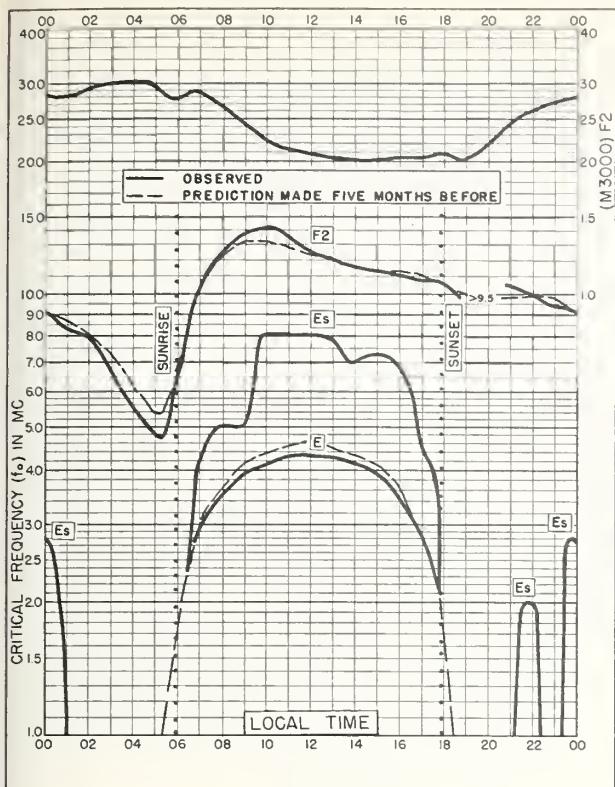


Fig. 48. CHIMBOTE, PERU  
9.1°S, 78.6°W SEPTEMBER 1958

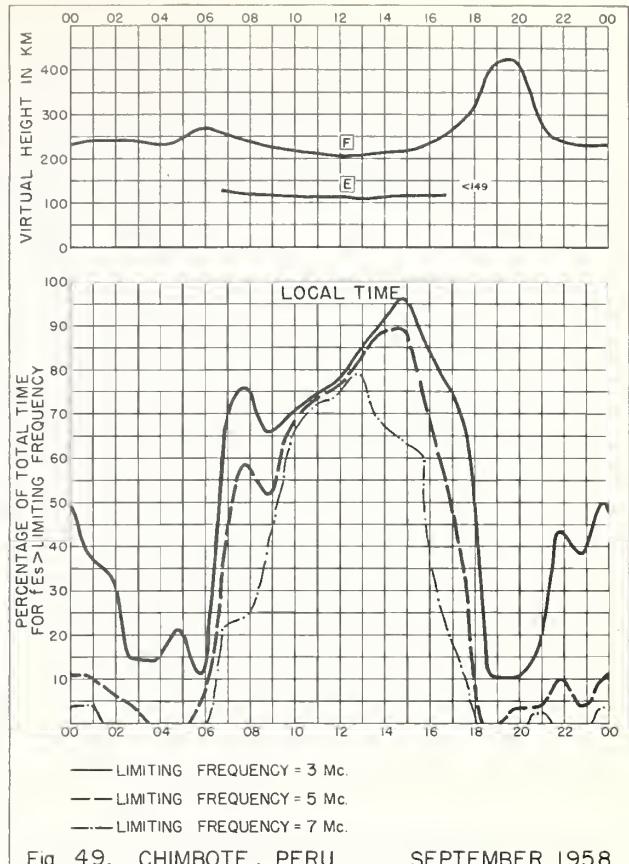


Fig. 49. CHIMBOTE, PERU SEPTEMBER 1958

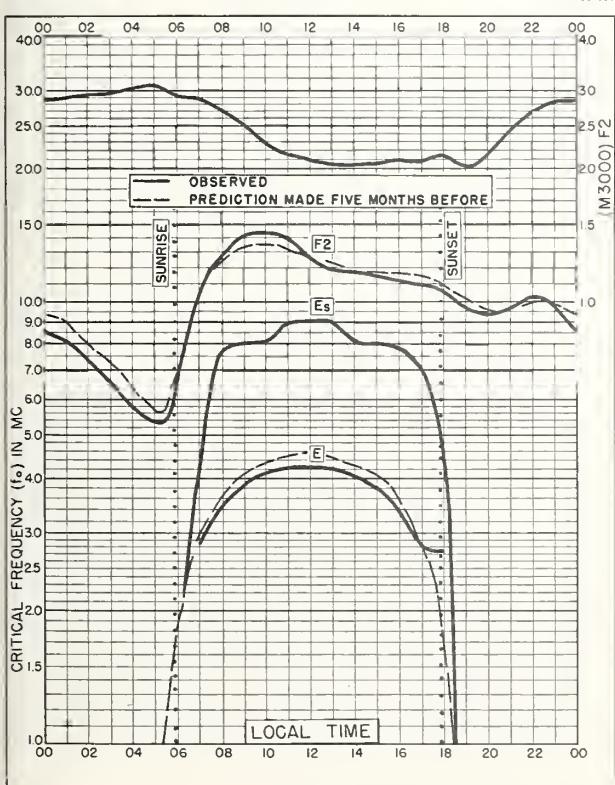


Fig. 50. HUANCAYO, PERU  
12.0°S, 75.3°W SEPTEMBER 1958

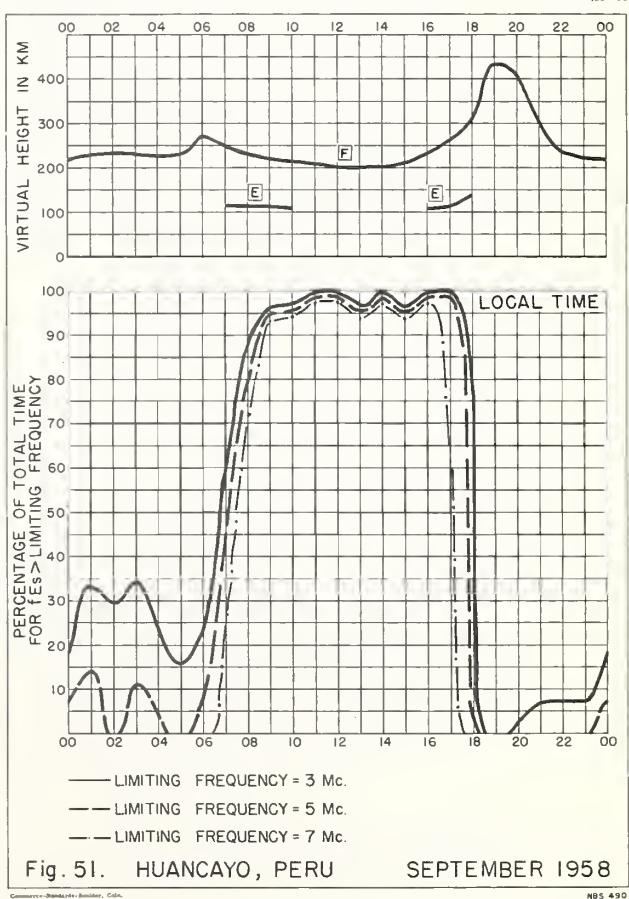


Fig. 51. HUANCAYO, PERU SEPTEMBER 1958

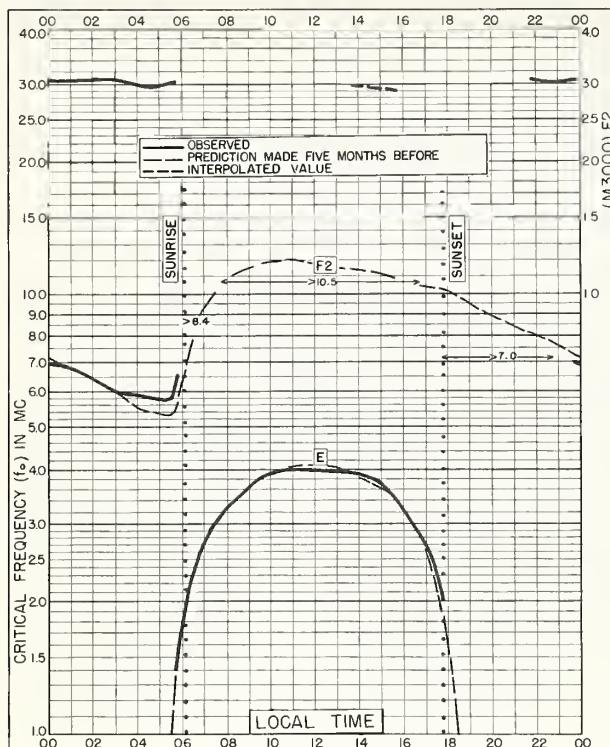


Fig. 52. WATHEROO, W. AUSTRALIA  
30.3°S, 115.9°E SEPTEMBER 1958

NBS 503

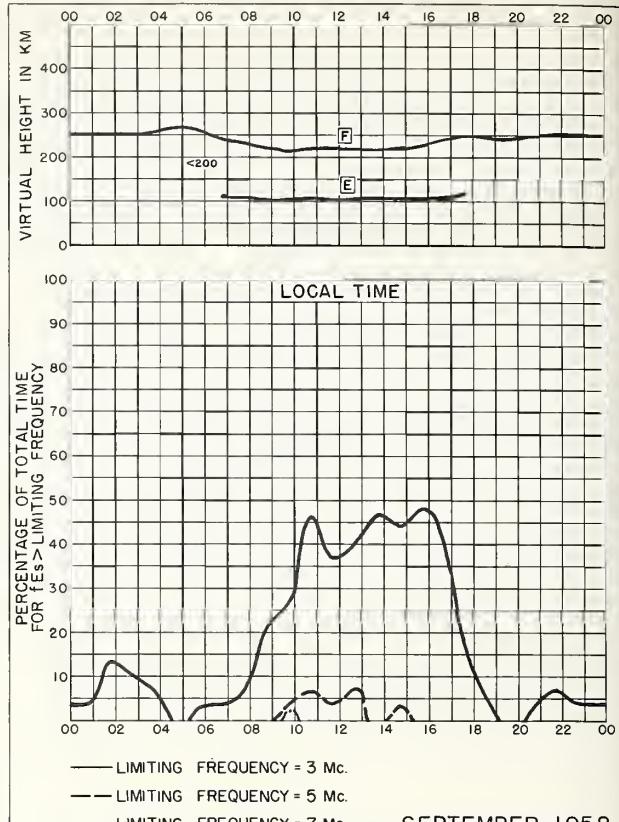


Fig. 53. WATHEROO, W. AUSTRALIA SEPTEMBER 1958

NBS 490

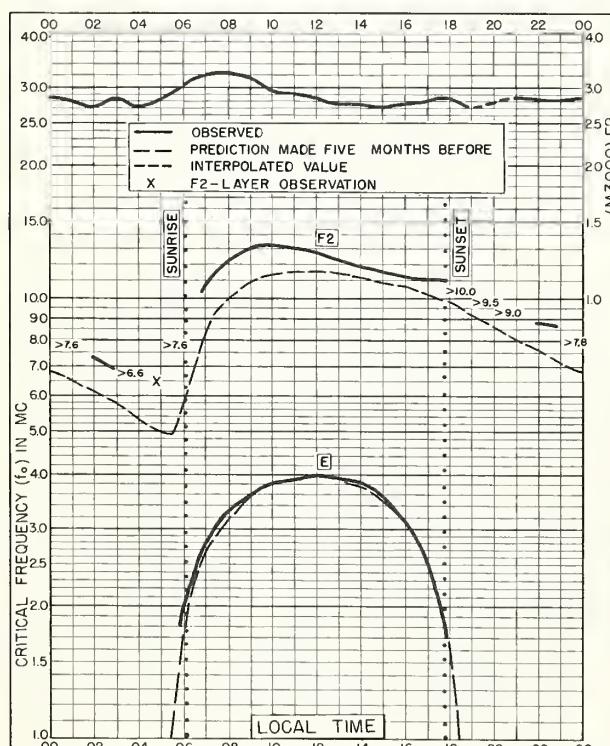


Fig. 54. CANBERRA, AUSTRALIA  
35.3°S, 149.0°E SEPTEMBER 1958

NBS 503

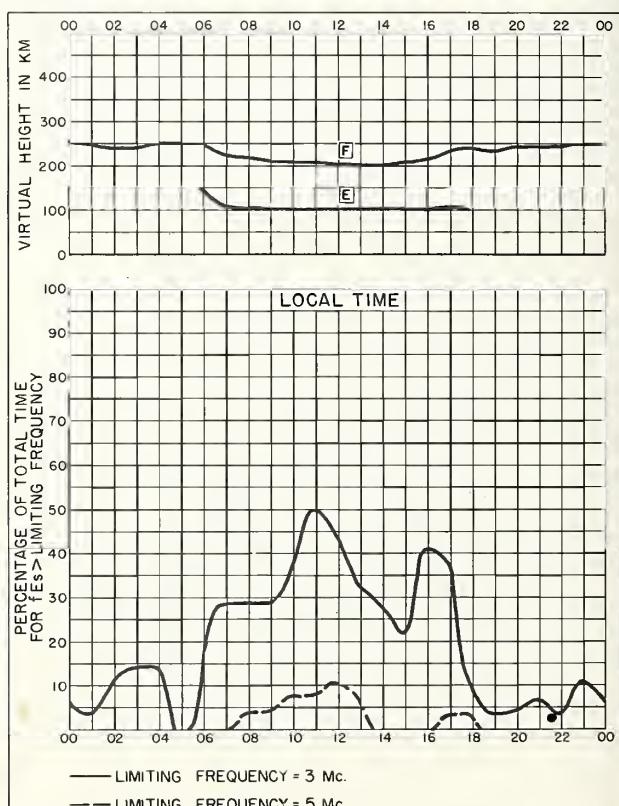


Fig. 55. CANBERRA, AUSTRALIA SEPTEMBER 1958

NBS 490

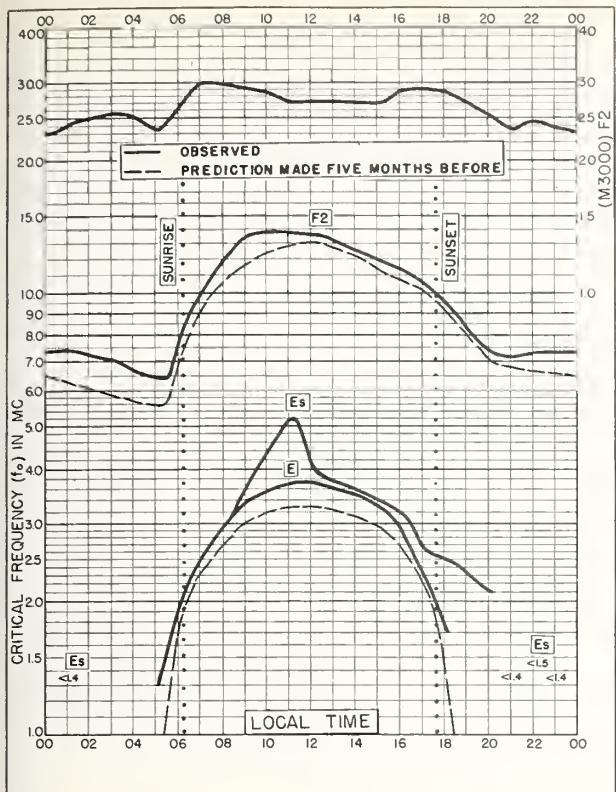


Fig. 56. FALKLAND IS.  
51.7°S, 57.8°W      SEPTEMBER 1958

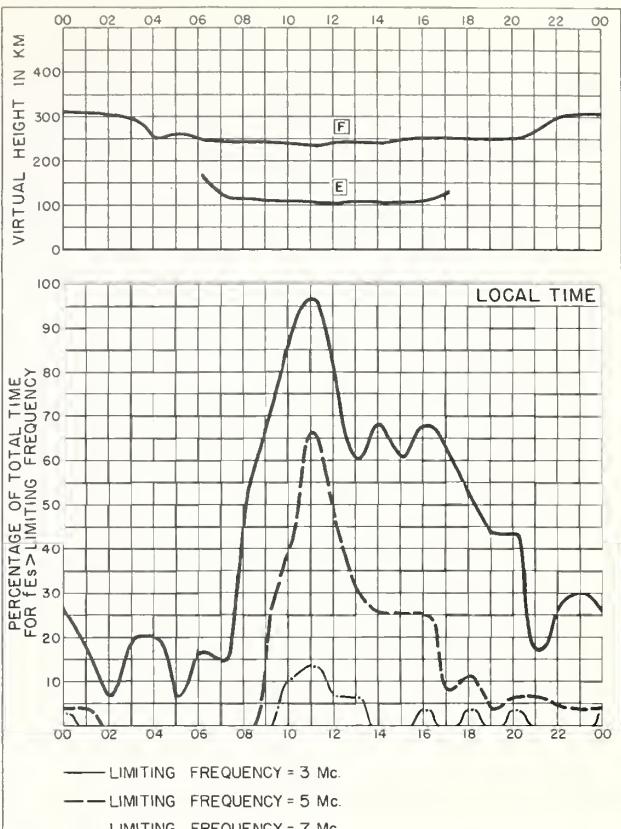


Fig. 57. FALKLAND IS.      SEPTEMBER 1958

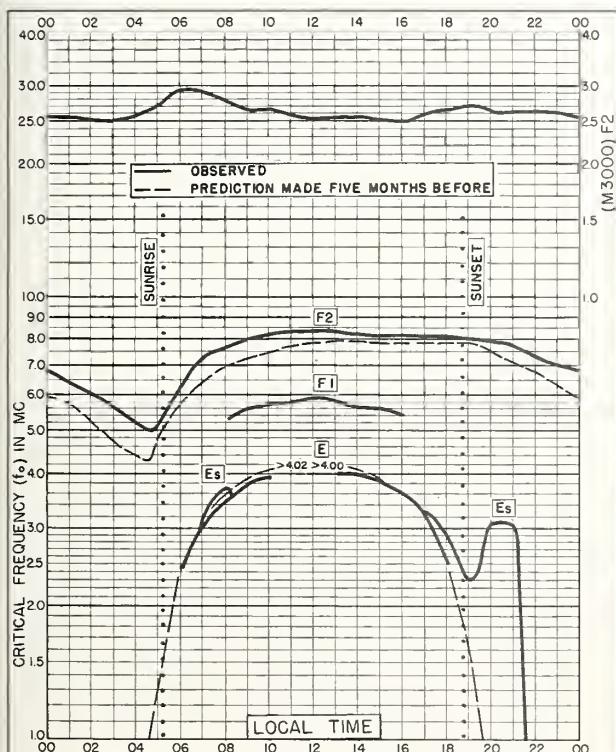


Fig. 58. FT. MONMOUTH, NEW JERSEY  
40.4°N, 74.1°W      AUGUST 1958

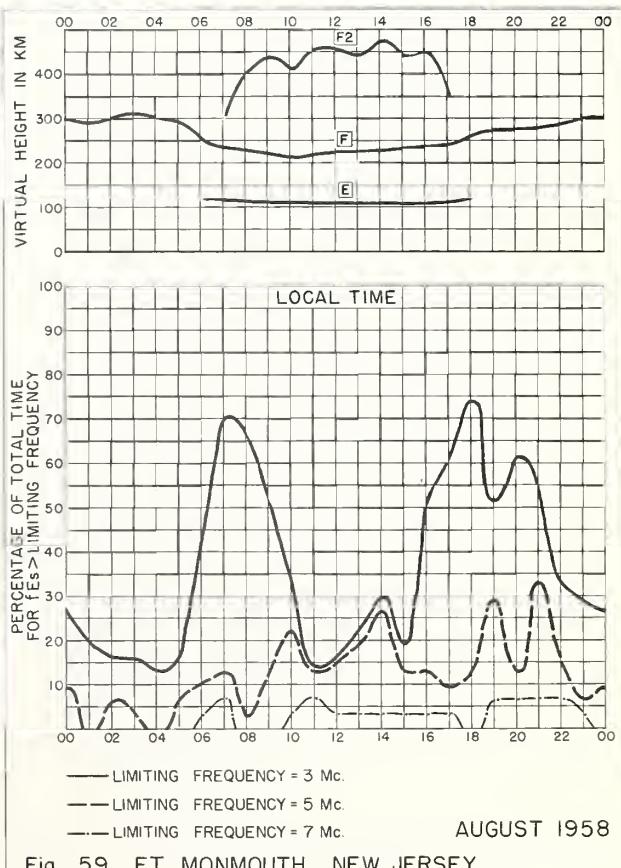


Fig. 59. FT. MONMOUTH, NEW JERSEY      AUGUST 1958

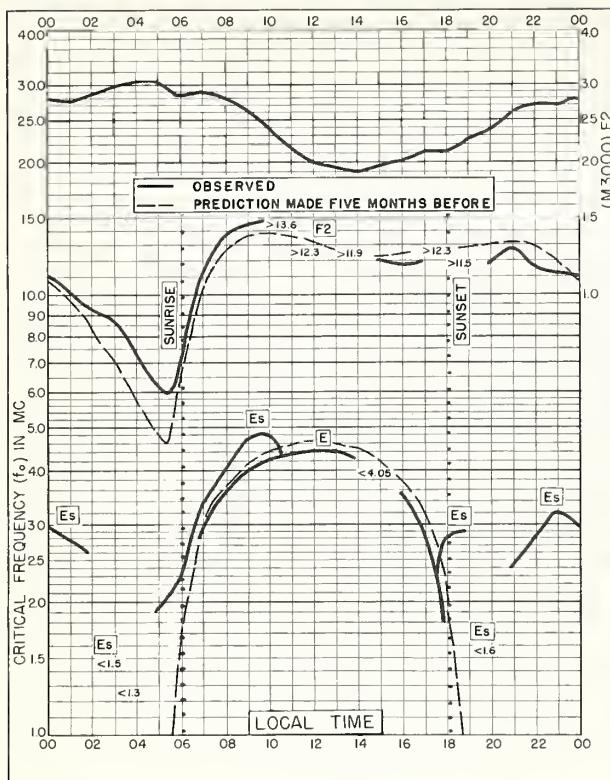


Fig. 60. SINGAPORE, BRITISH MALAYA  
1.3°N, 103.8°E AUGUST 1958

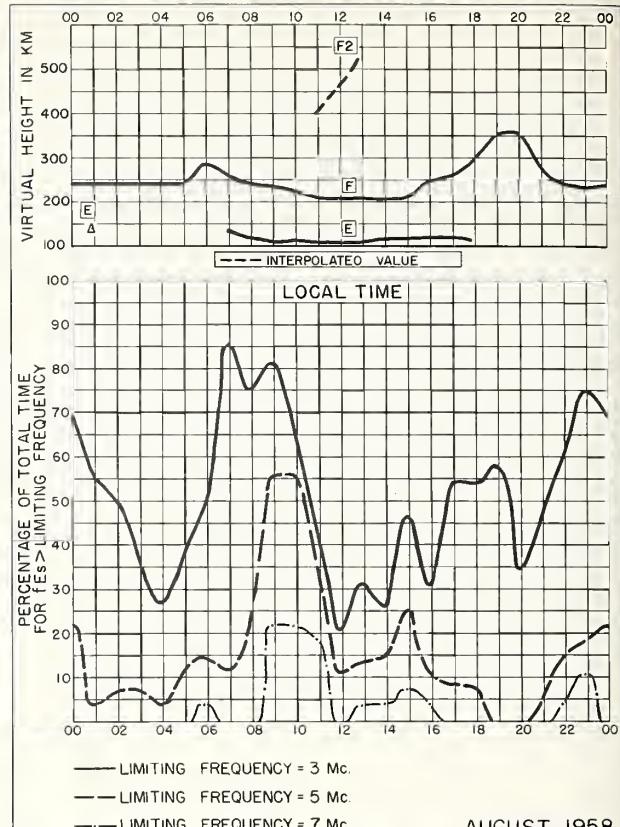


Fig. 61. SINGAPORE, BRITISH MALAYA AUGUST 1958

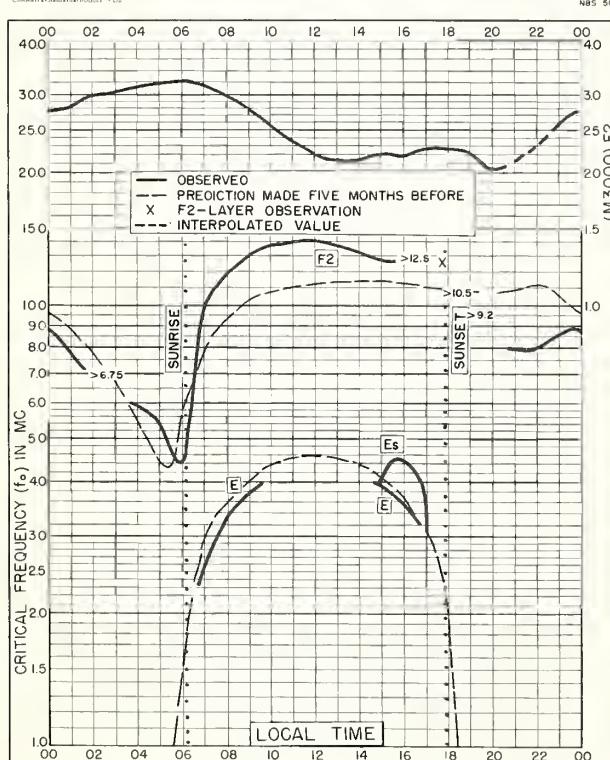


Fig. 62. NATAL, BRAZIL  
5.3°S, 35.1°W AUGUST 1958

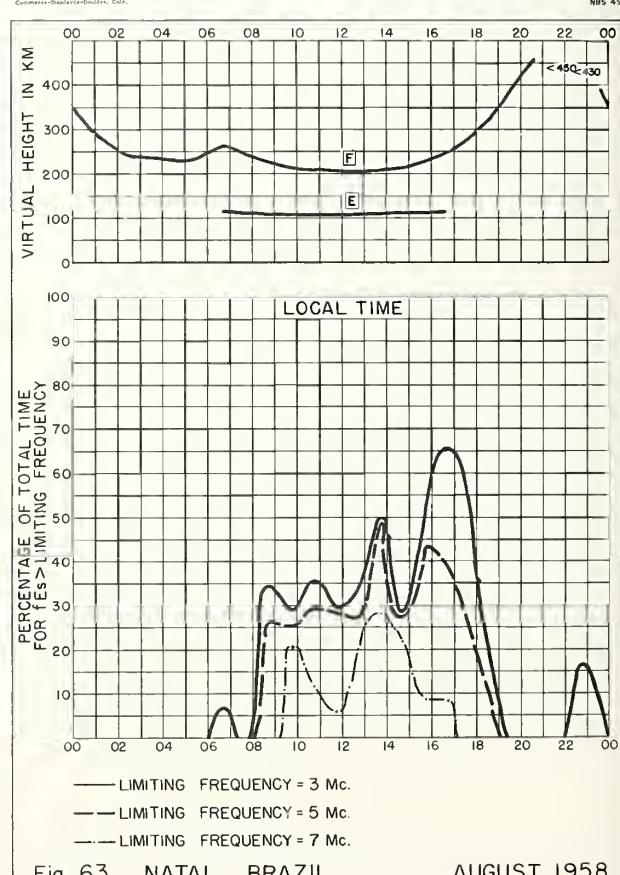
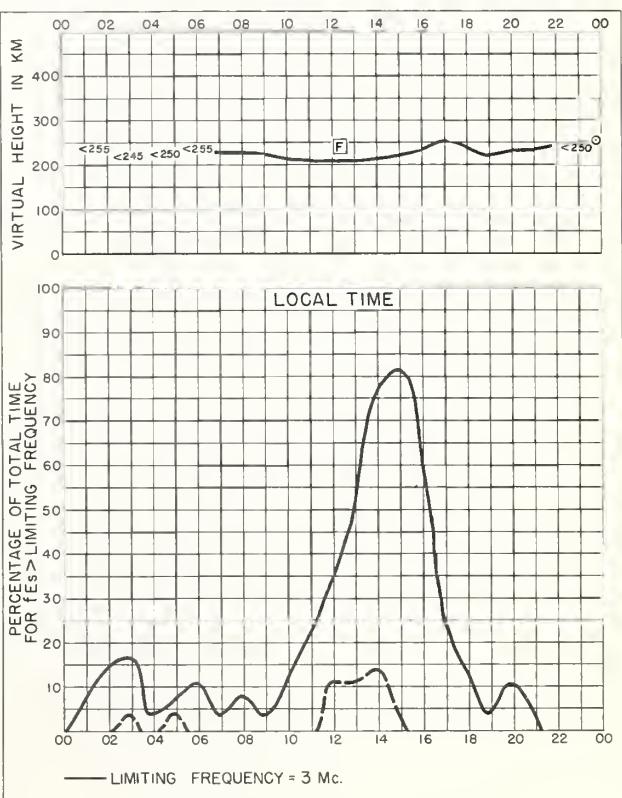
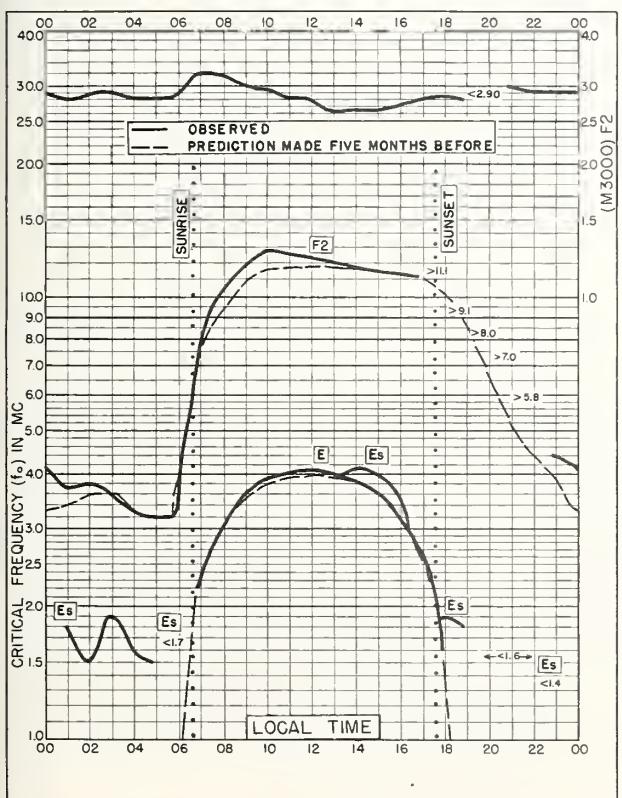
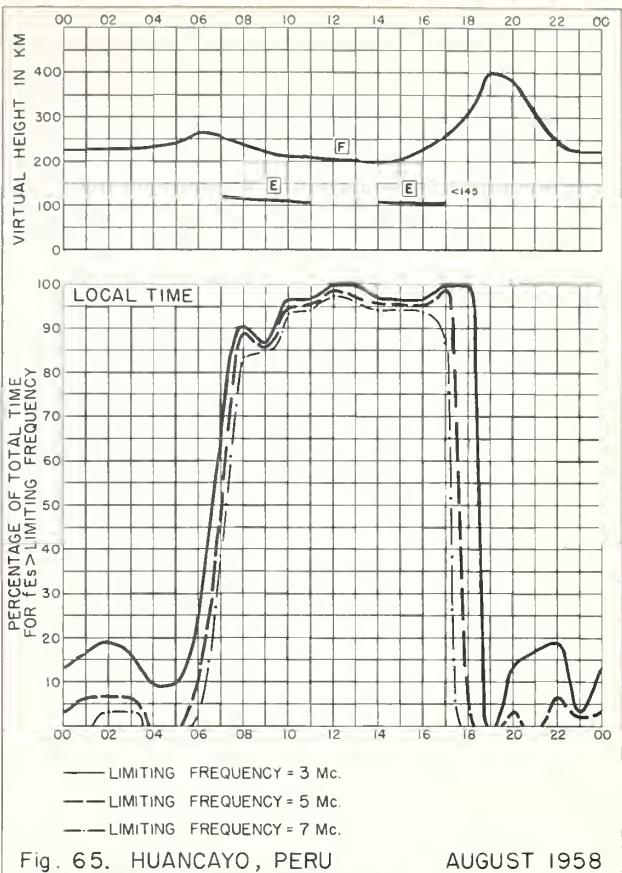
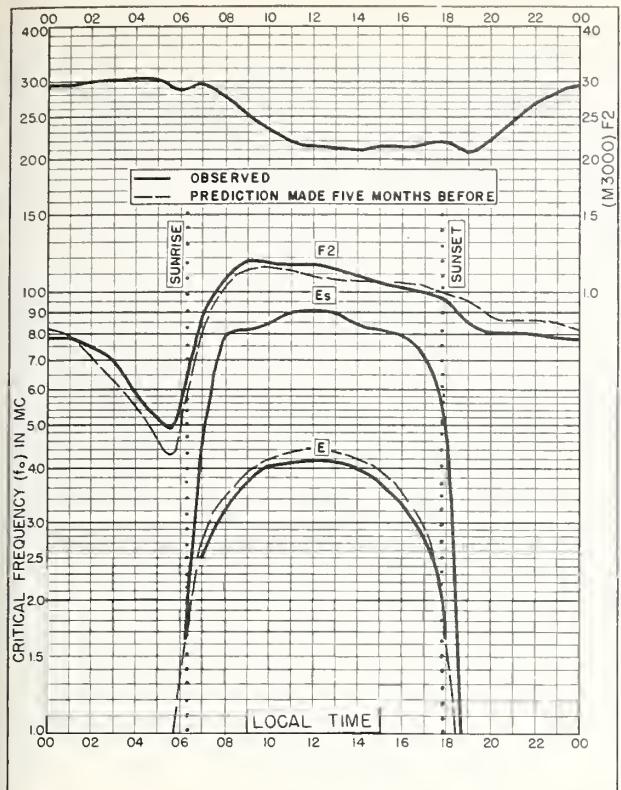


Fig. 63. NATAL, BRAZIL AUGUST 1958



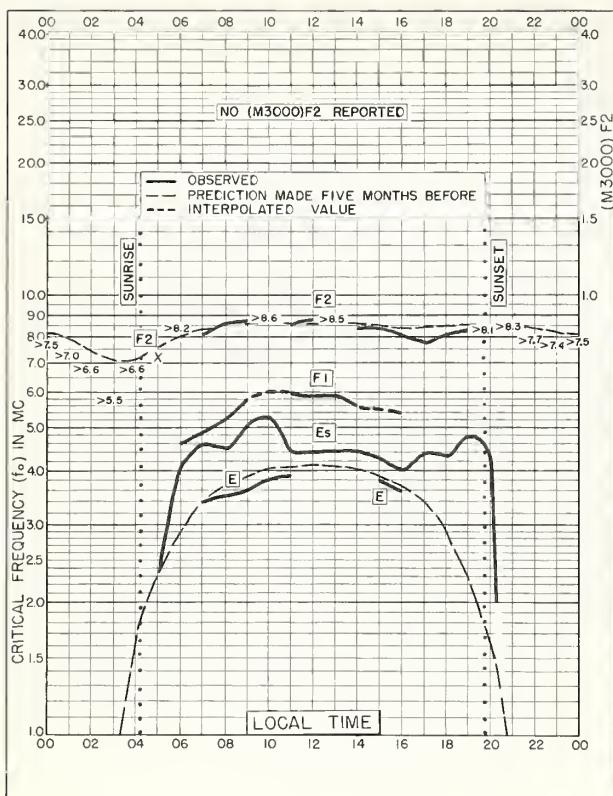


Fig. 68. GRAZ, AUSTRIA

47.1°N, 15.5°E

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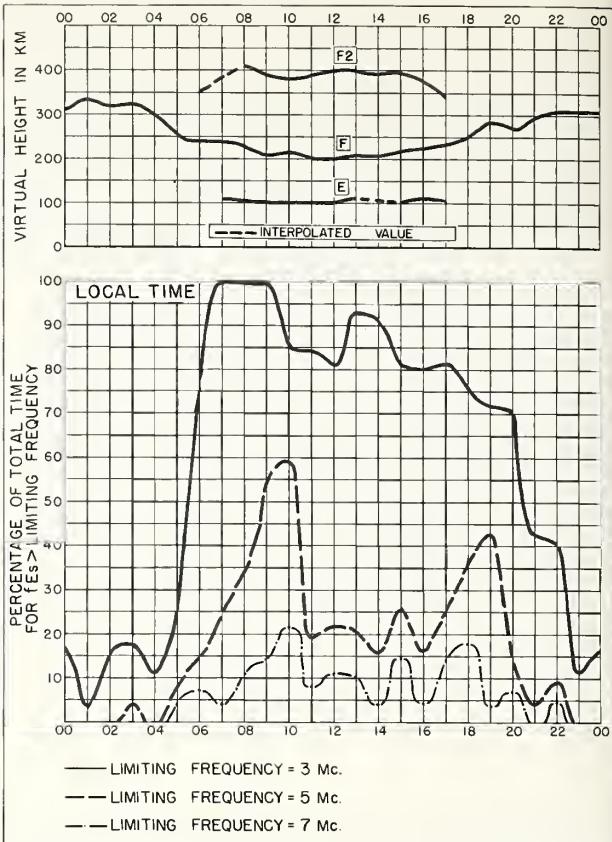


Fig. 69. GRAZ, AUSTRIA

JUNE 1958

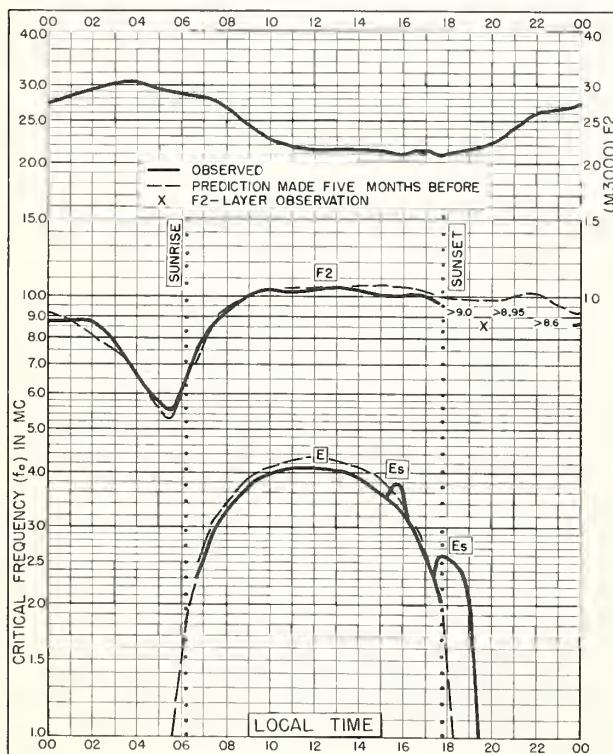


Fig. 70. CHICLAYO, PERU

6.8°S, 79.8°W

JUNE 1958

NBS 503

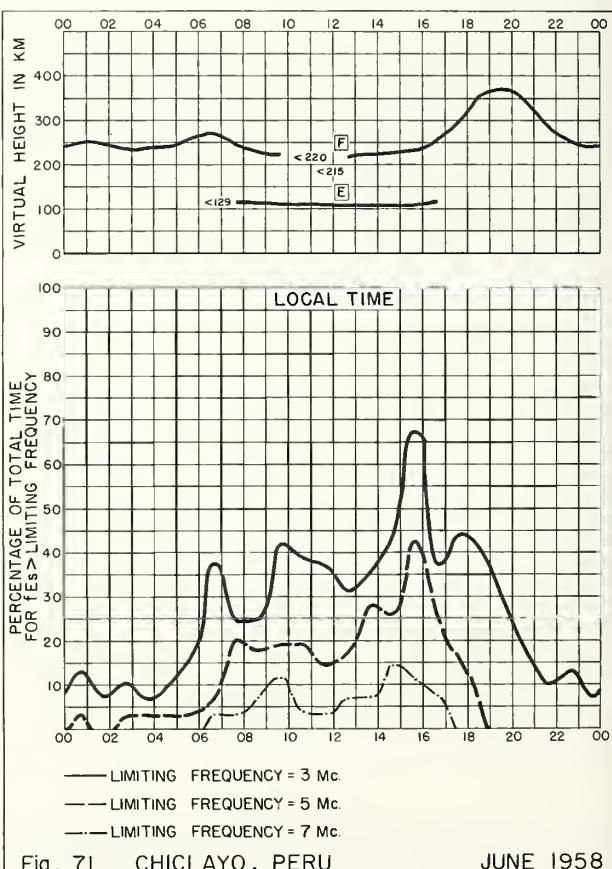


Fig. 71. CHICLAYO, PERU

JUNE 1958

NBS 490

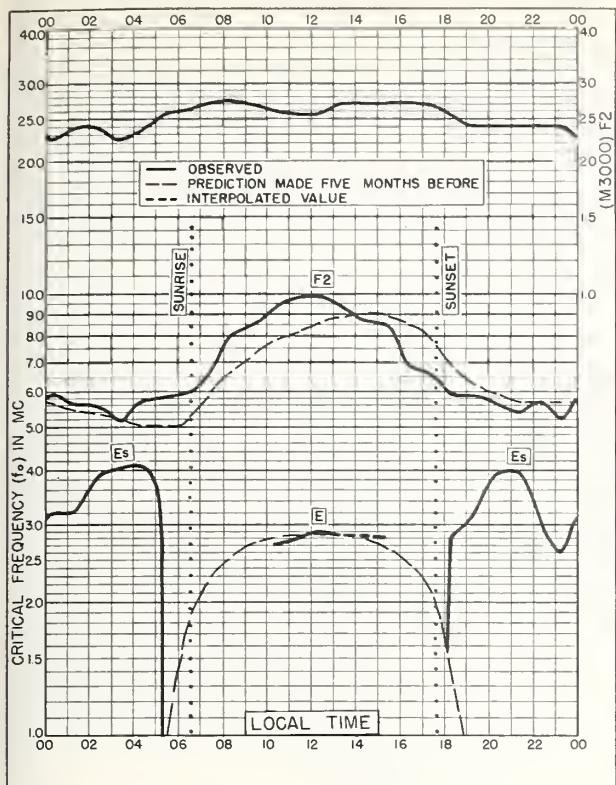


Fig. 72. TROMSO, NORWAY  
69.7°N, 19.0°E MARCH 1958

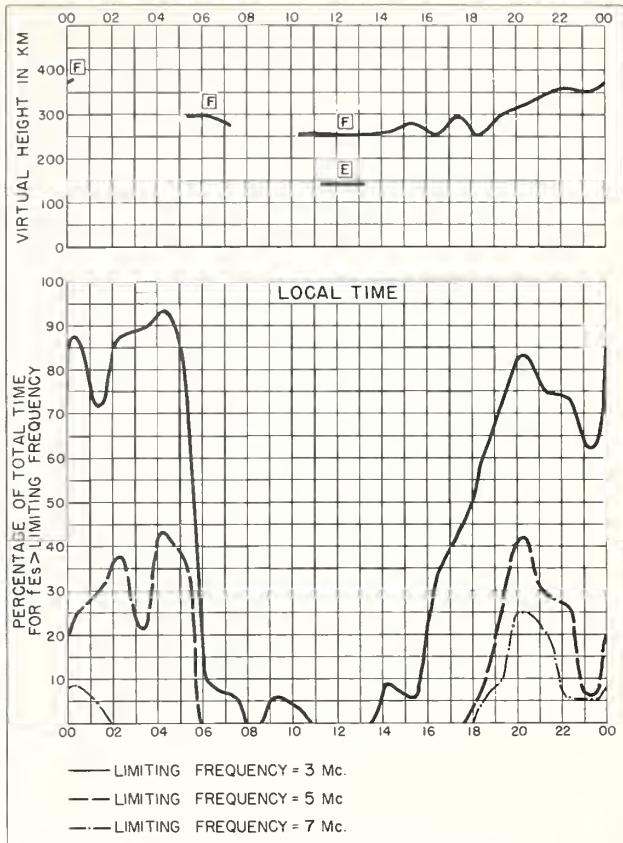


Fig. 73. TROMSO, NORWAY MARCH 1958

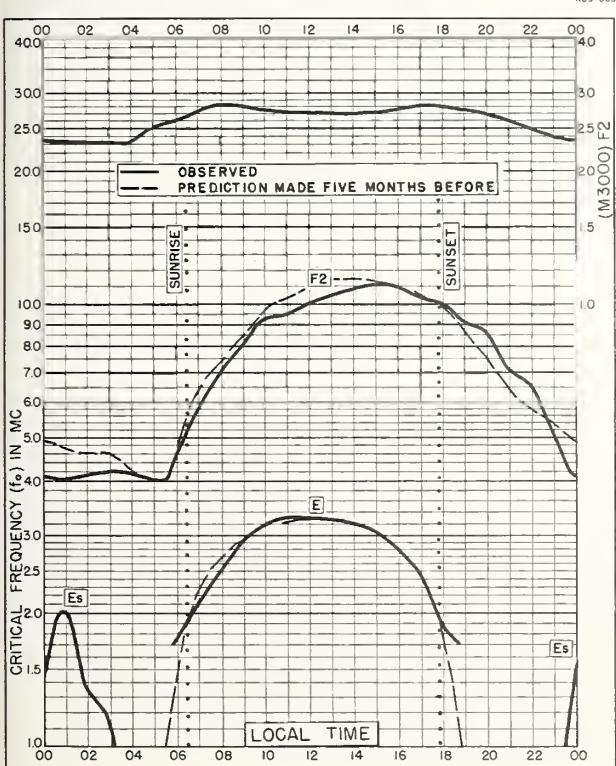


Fig. 74. OSLO, NORWAY  
60.0°N, 11.1°E MARCH 1958

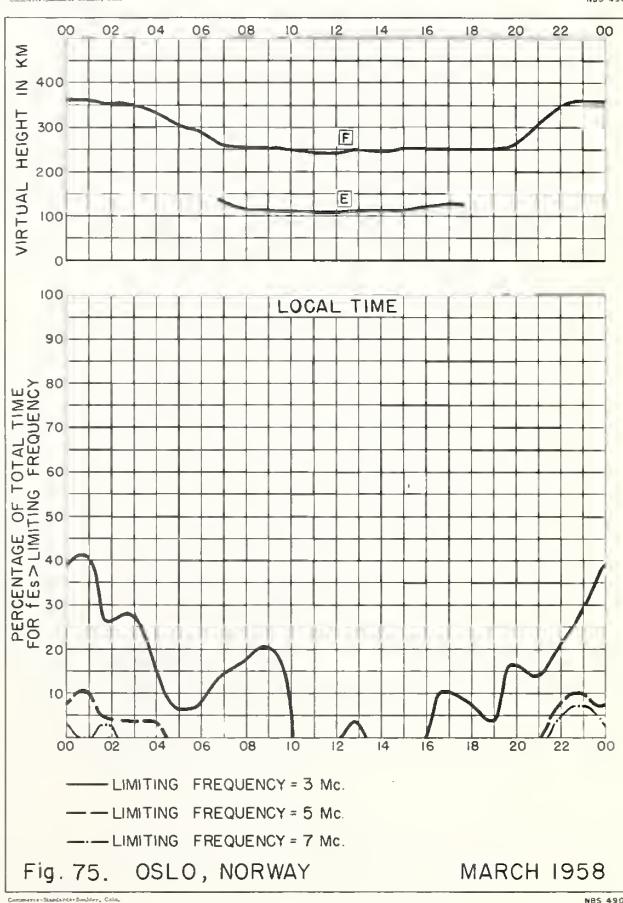


Fig. 75. OSLO, NORWAY MARCH 1958

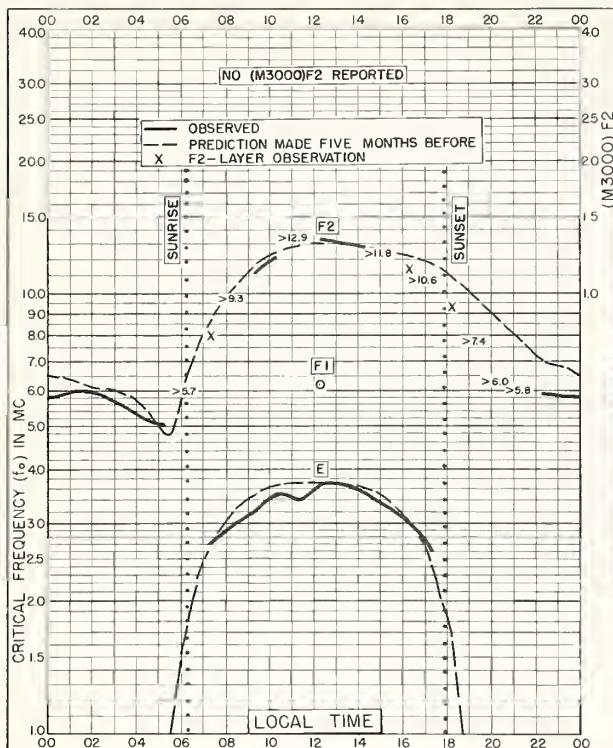


Fig. 76. BUDAPEST, HUNGARY

47.4°N, 19.2°E

MARCH 1958

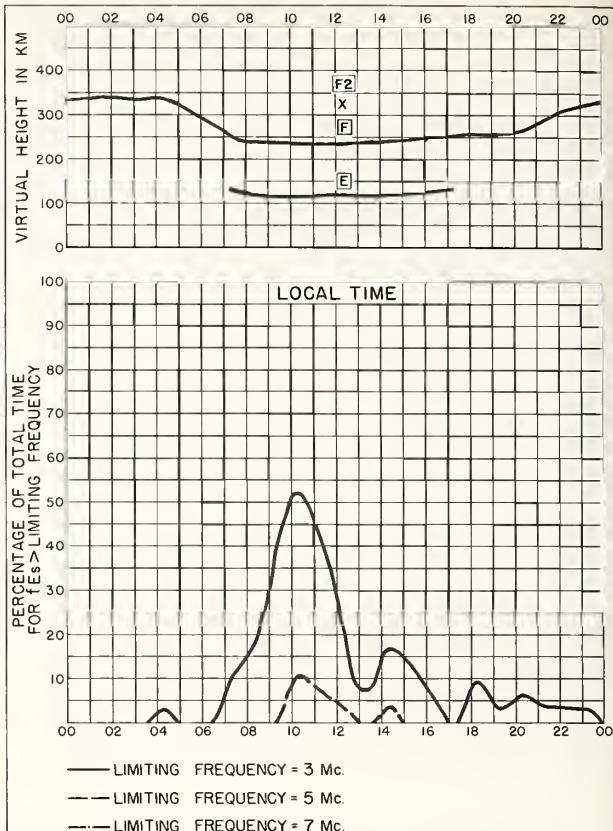


Fig. 77. BUDAPEST, HUNGARY

MARCH 1958

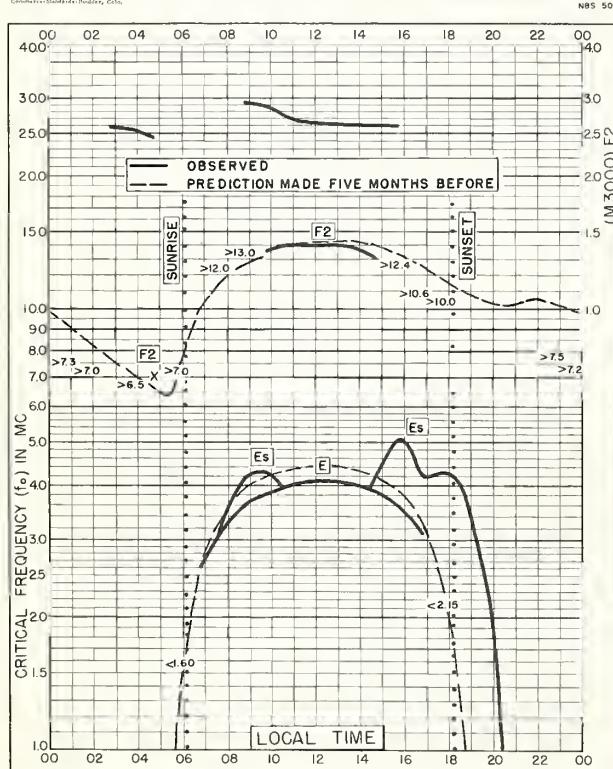


Fig. 78. TOWNSVILLE, AUSTRALIA

19.3°S, 146.7°E

MARCH 1958

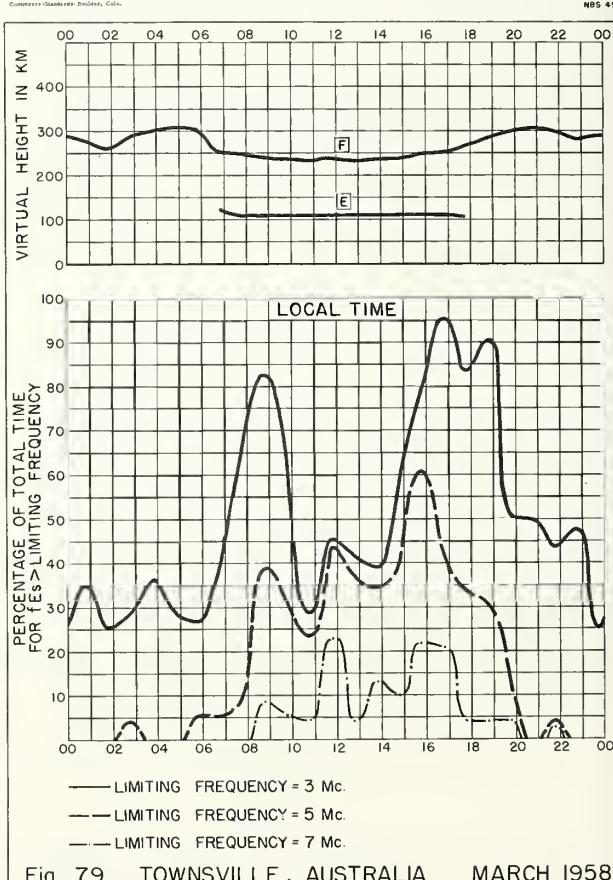
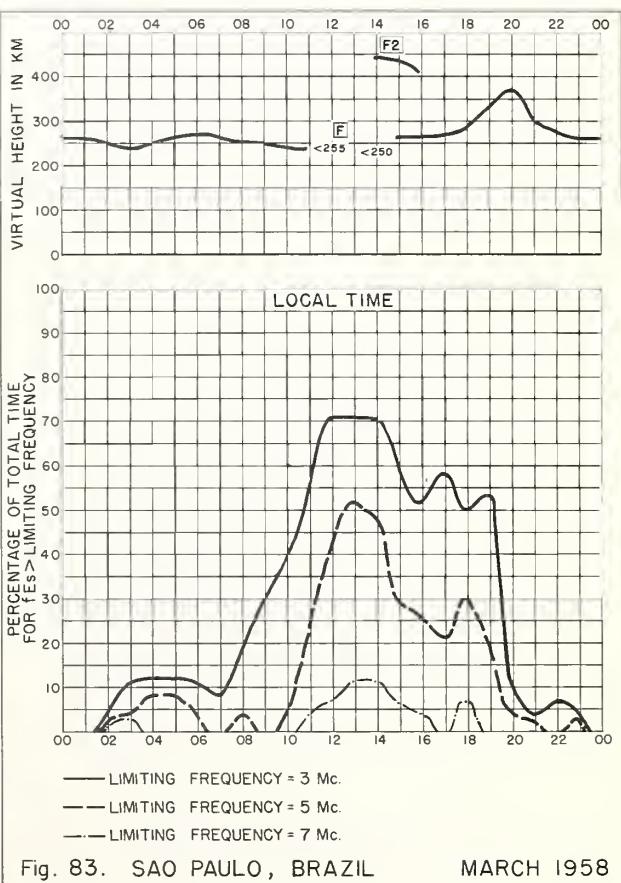
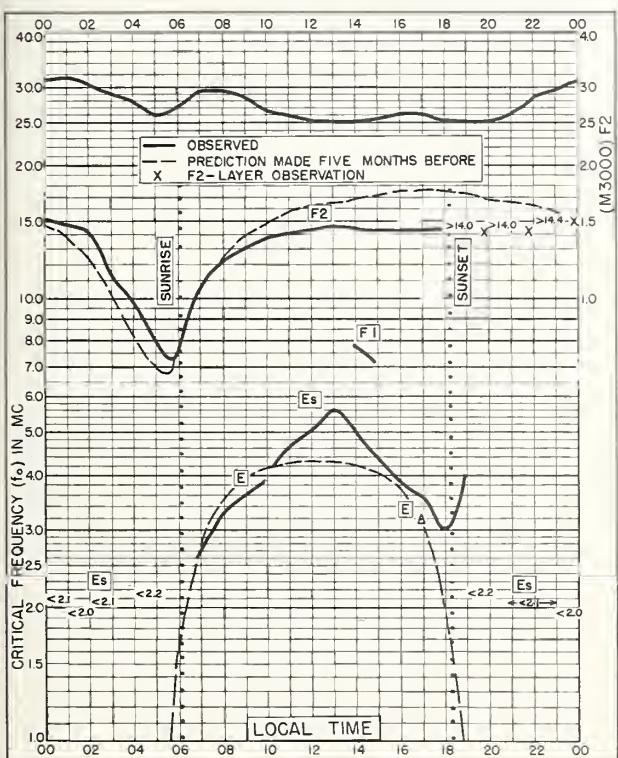
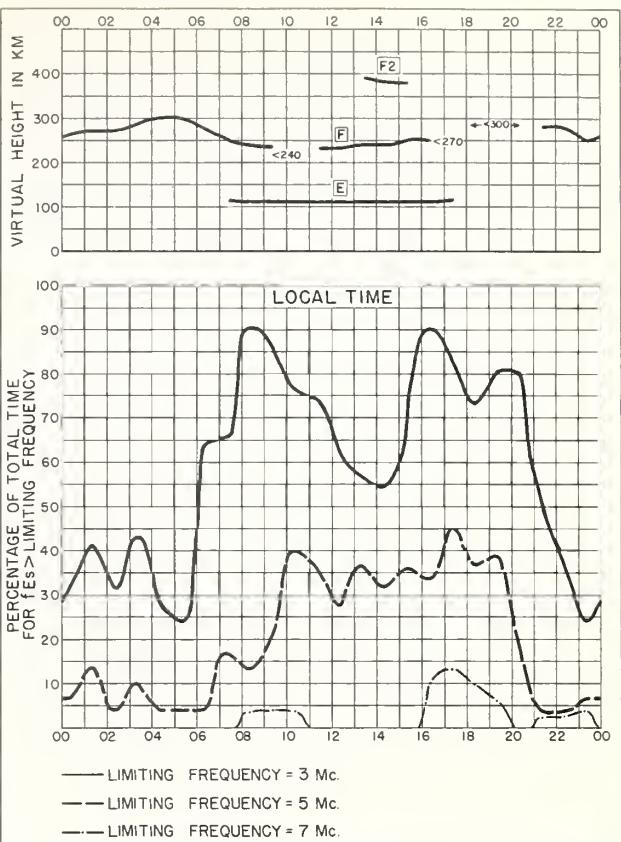
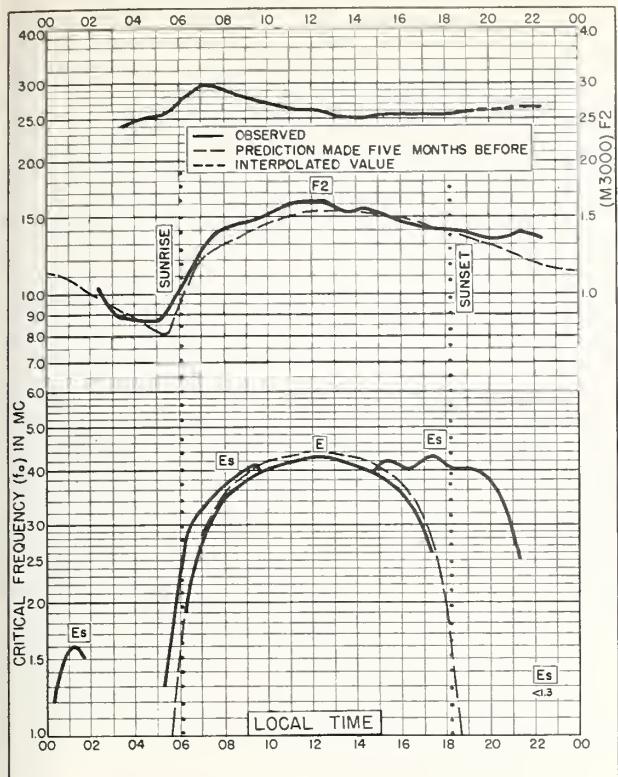
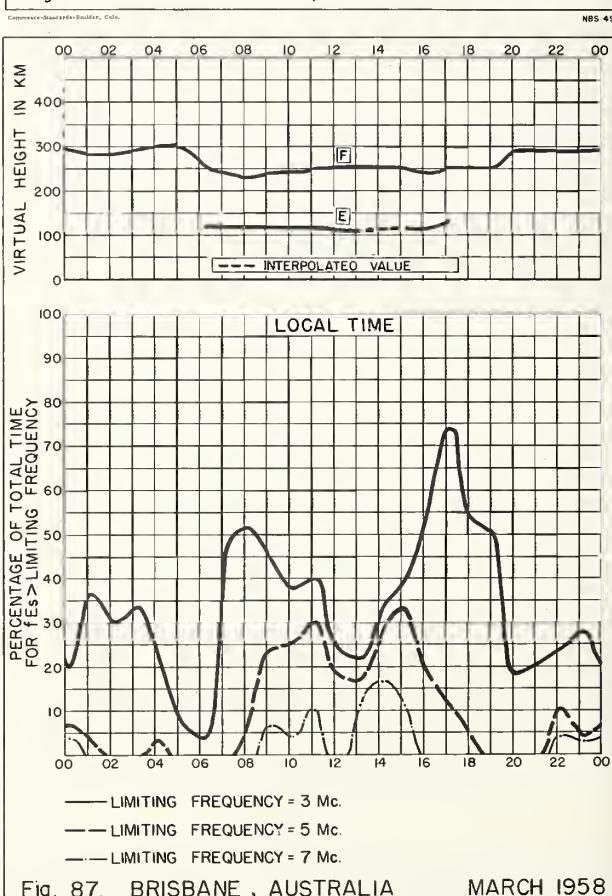
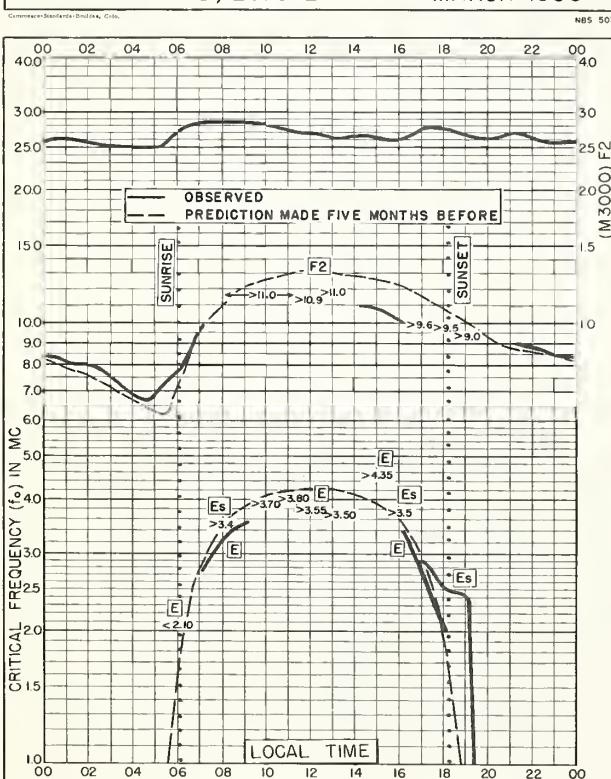
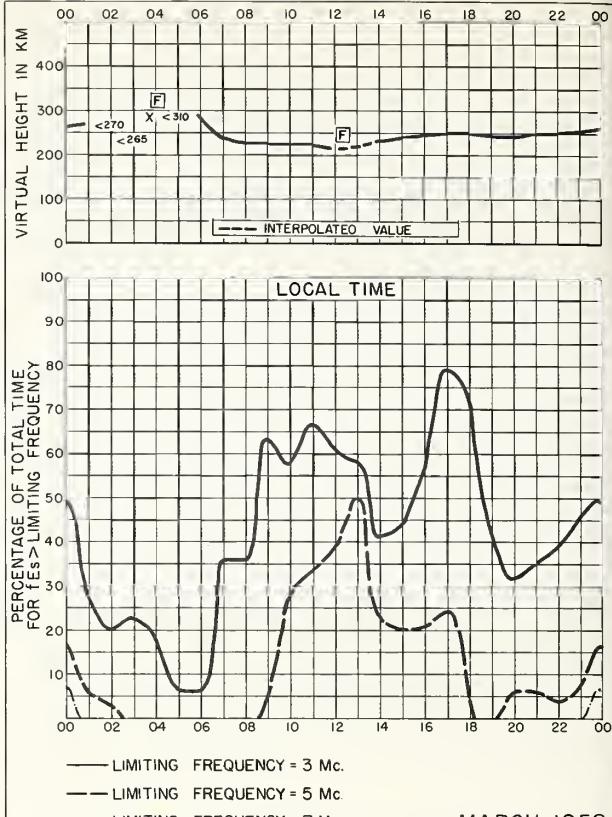
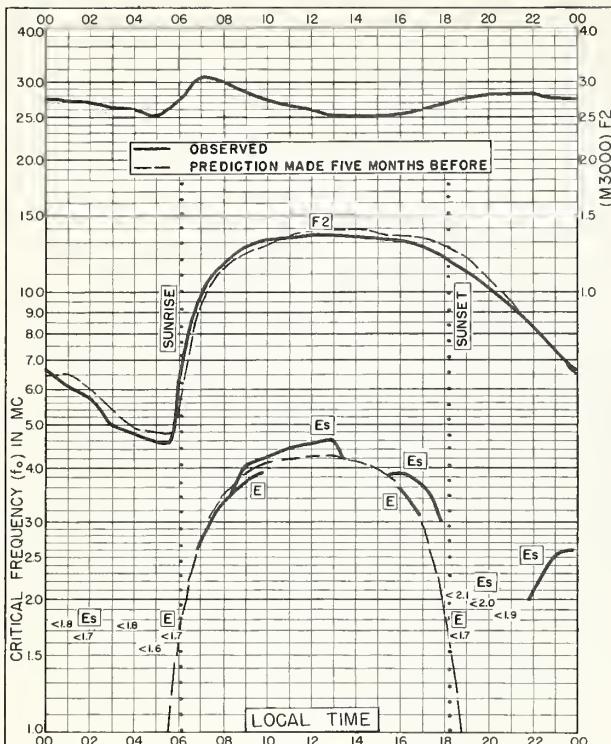
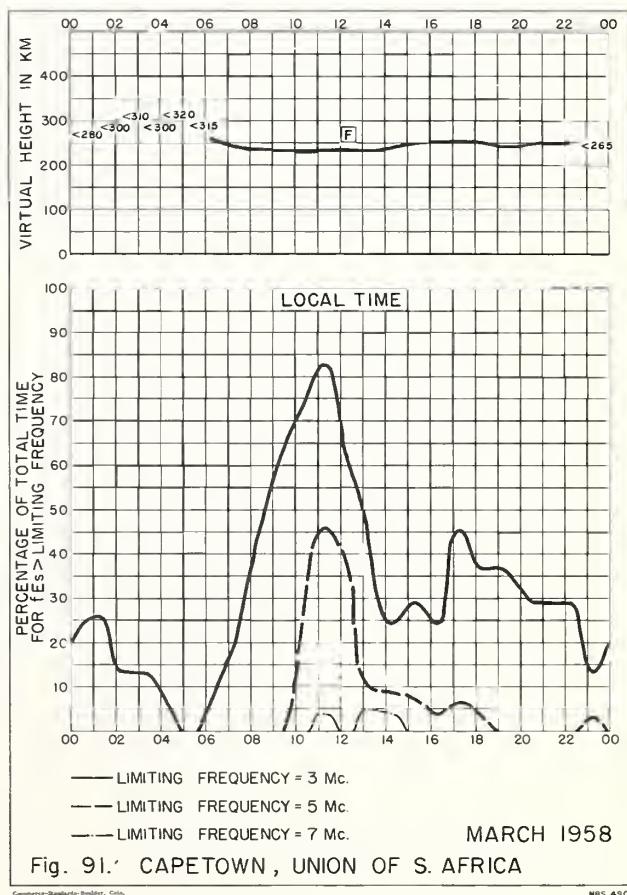
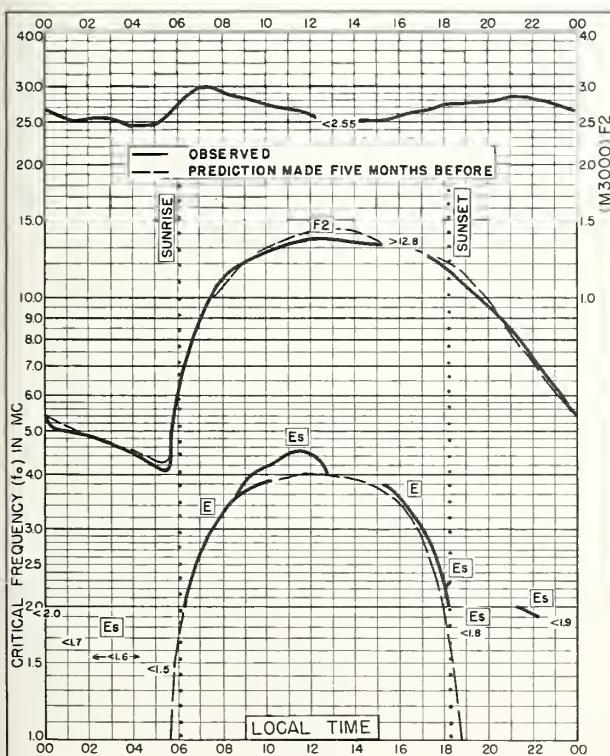
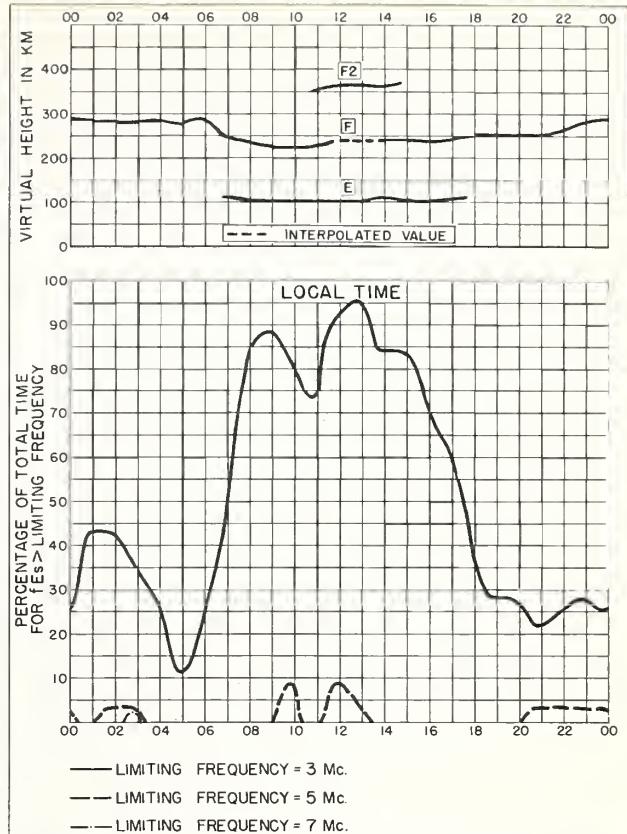
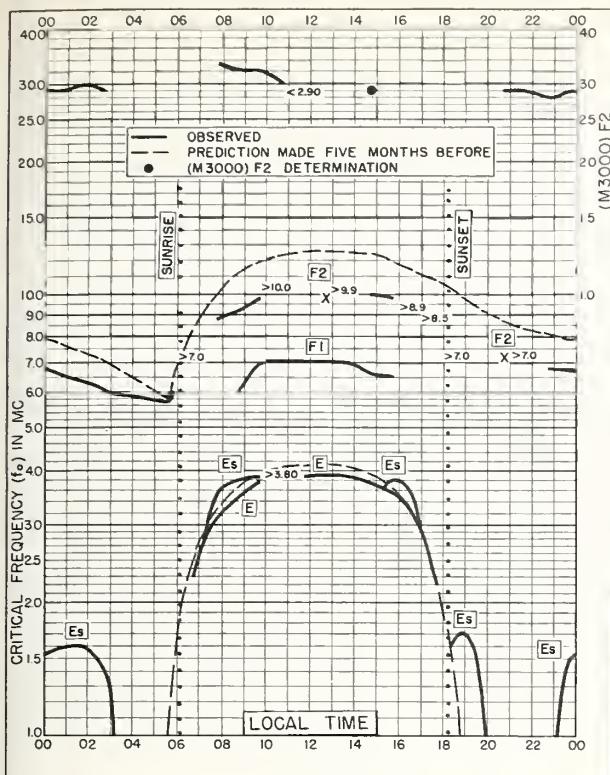


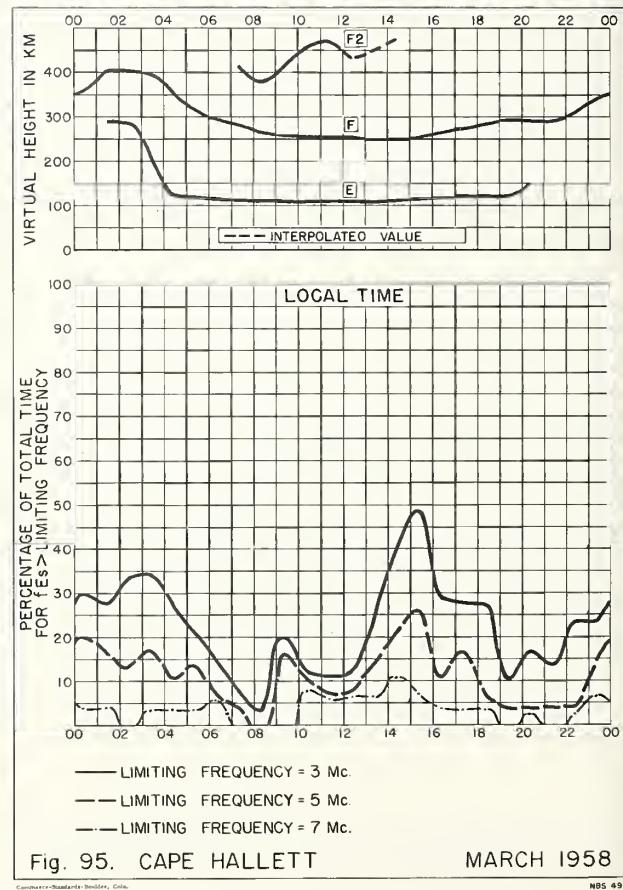
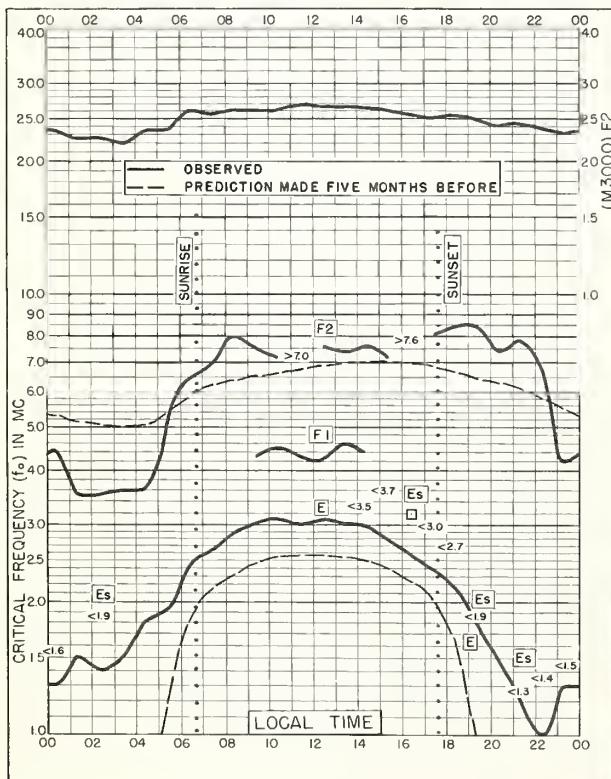
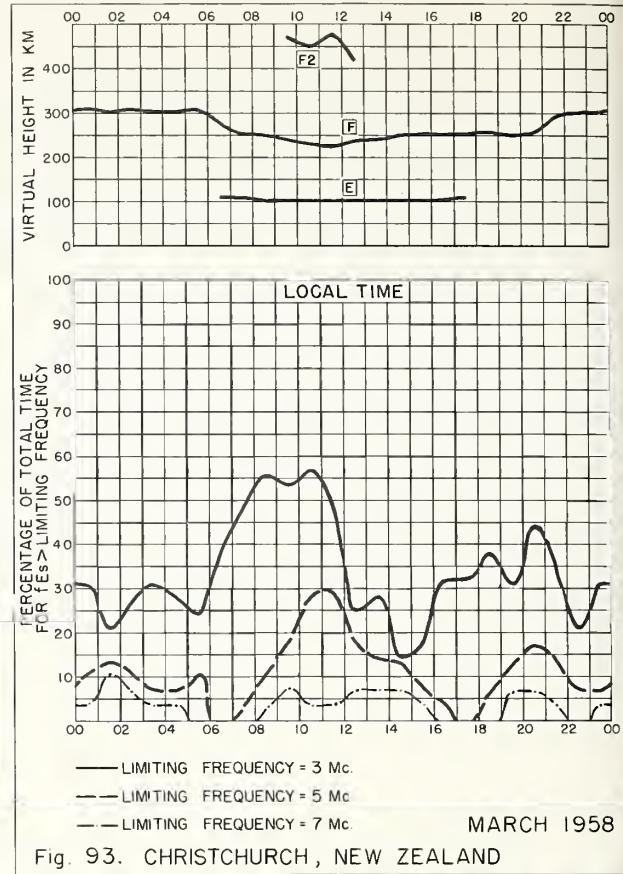
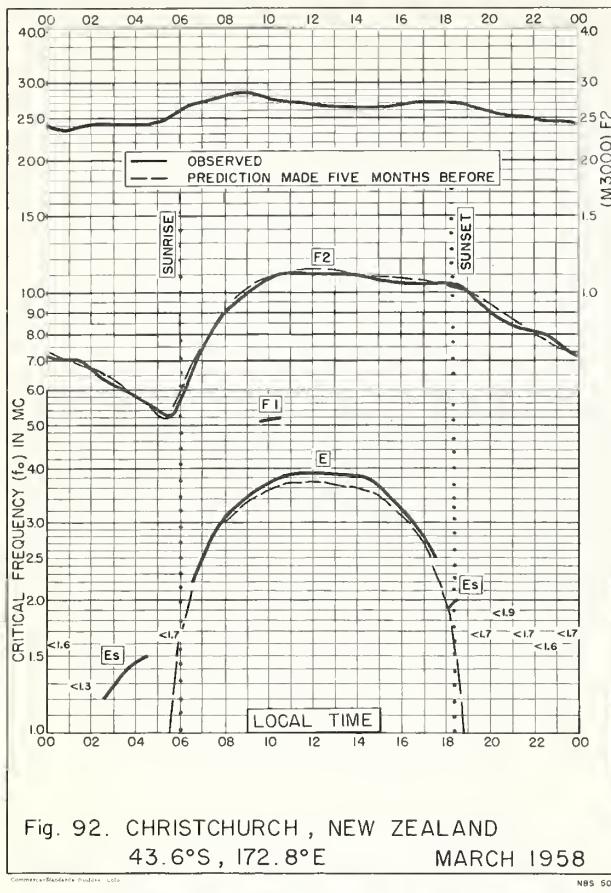
Fig. 79. TOWNSVILLE, AUSTRALIA

MARCH 1958









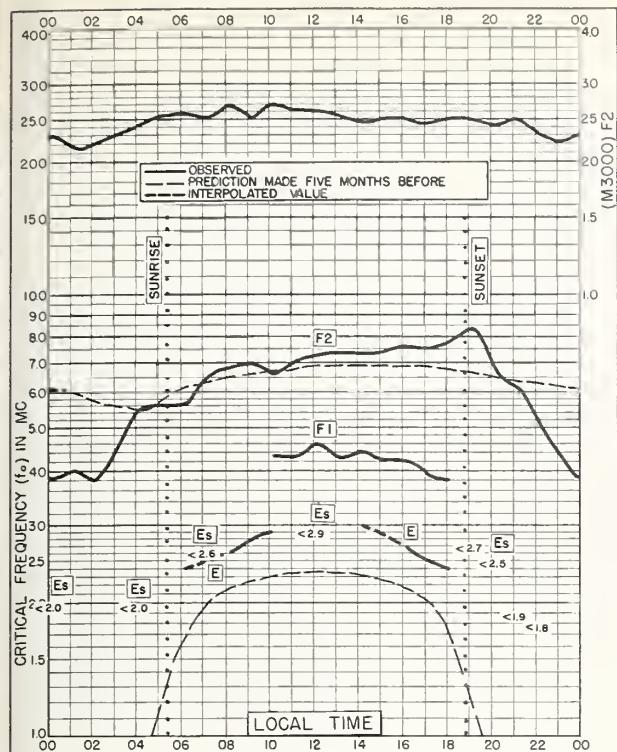


Fig. 96. SCOTT BASE  
77.8°S, 166.8°E

MARCH 1958

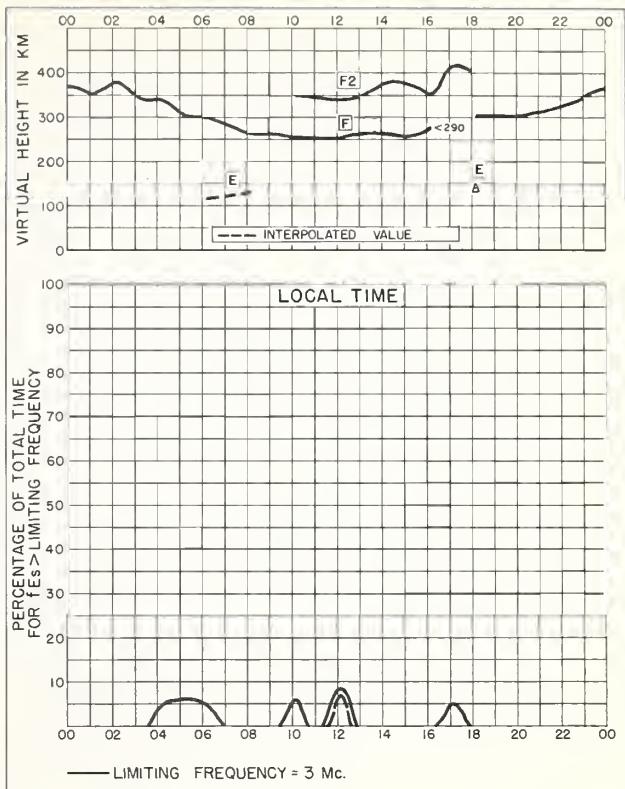


Fig. 97. SCOTT BASE

MARCH 1958

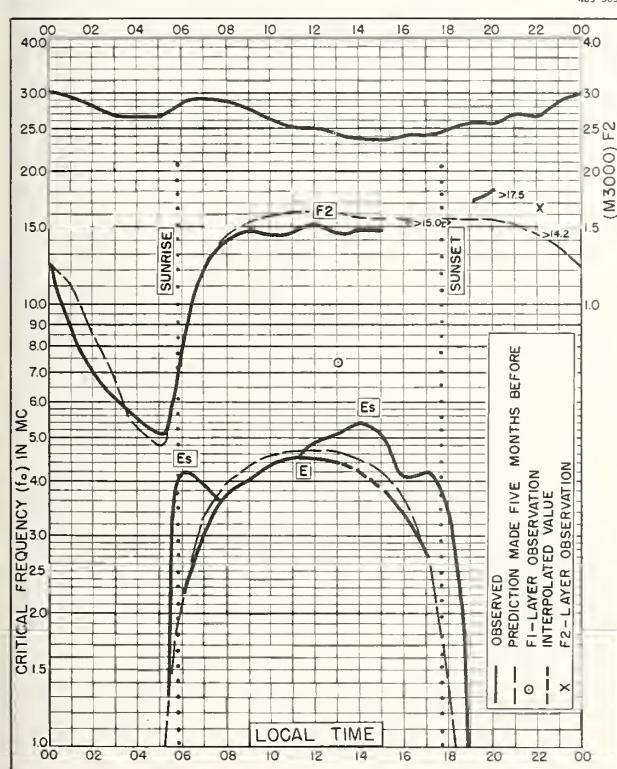


Fig. 98. BOGOTA, COLOMBIA  
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OCTOBER 1957

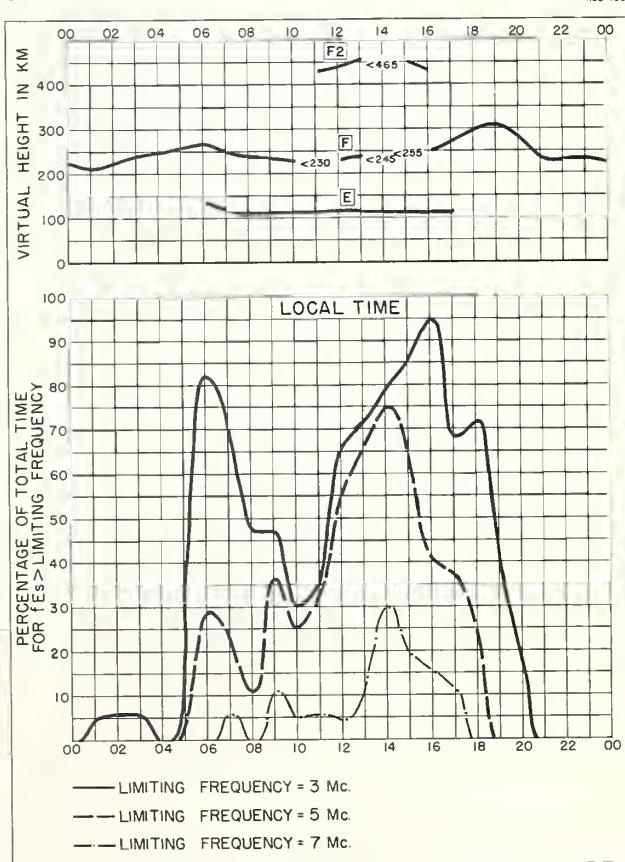


Fig. 99. BOGOTA, COLOMBIA

OCTOBER 1957

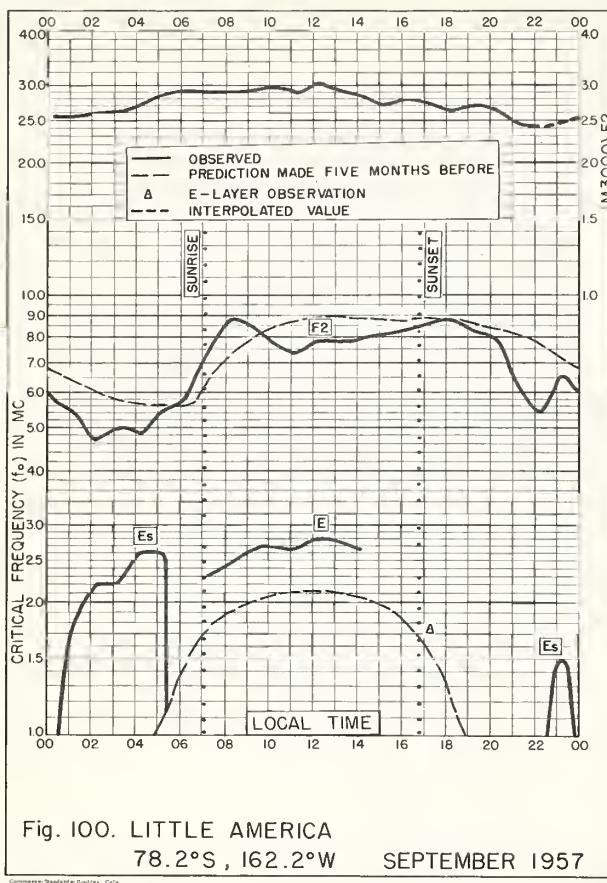


Fig. 100. LITTLE AMERICA  
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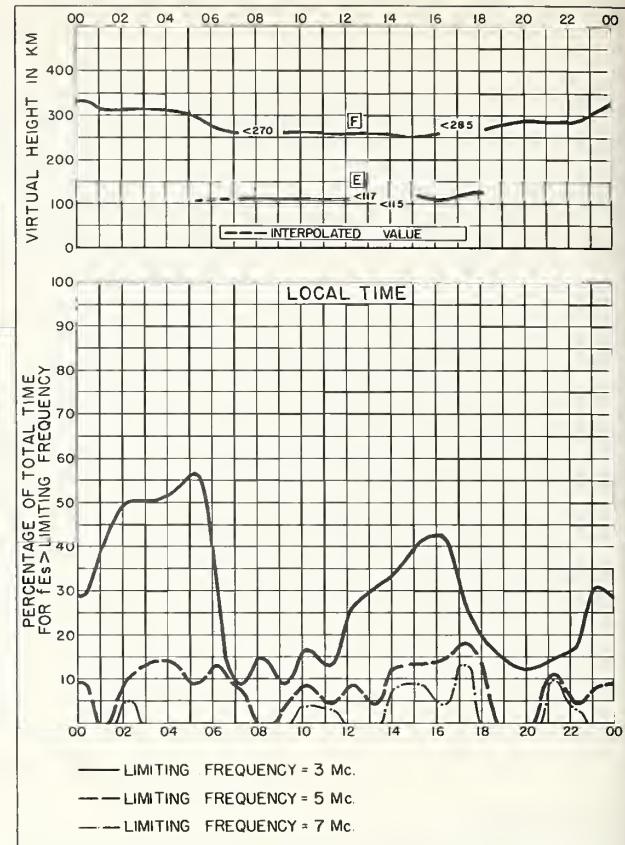


Fig. 101. LITTLE AMERICA SEPTEMBER 1957

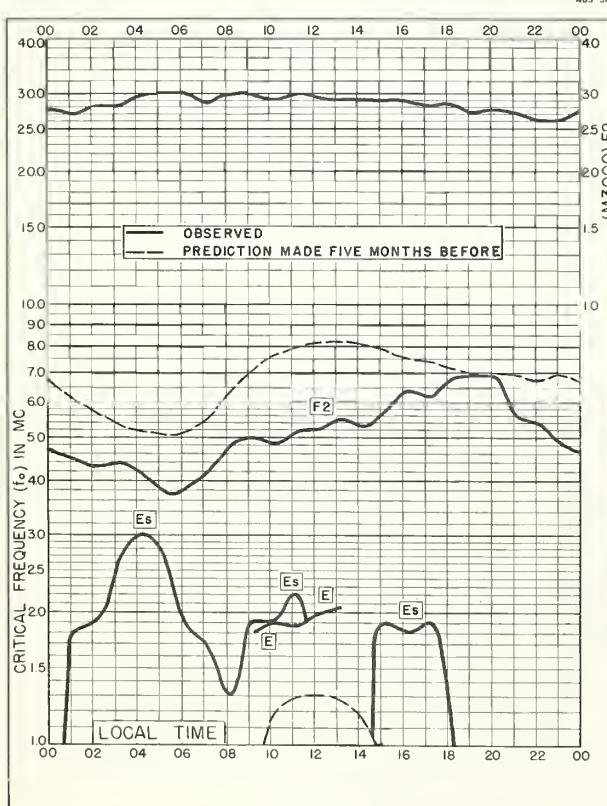


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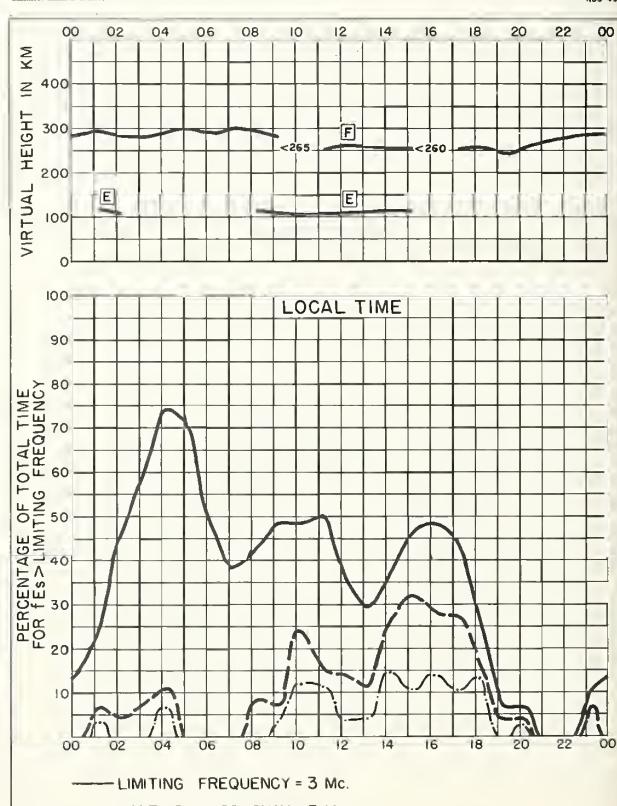


Fig. 103. LITTLE AMERICA AUGUST 1957

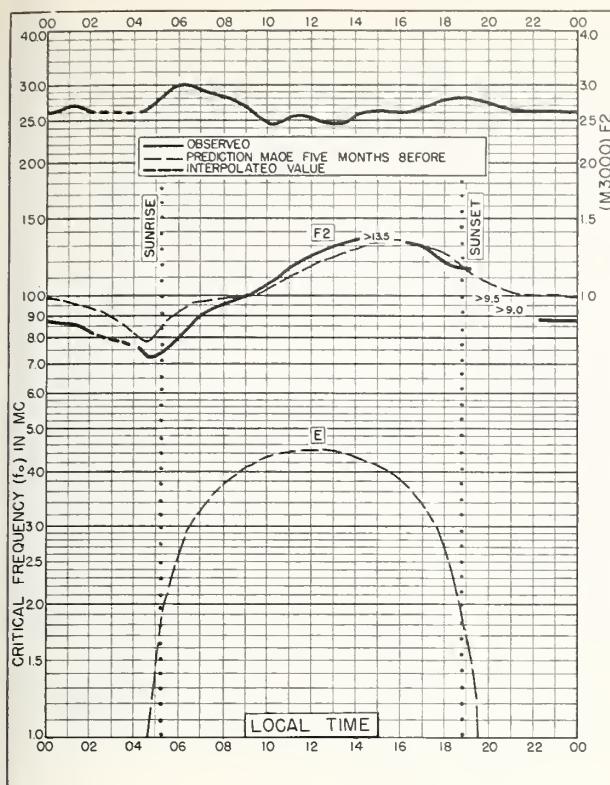


Fig. 104. DELHI, INDIA  
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JULY 1957

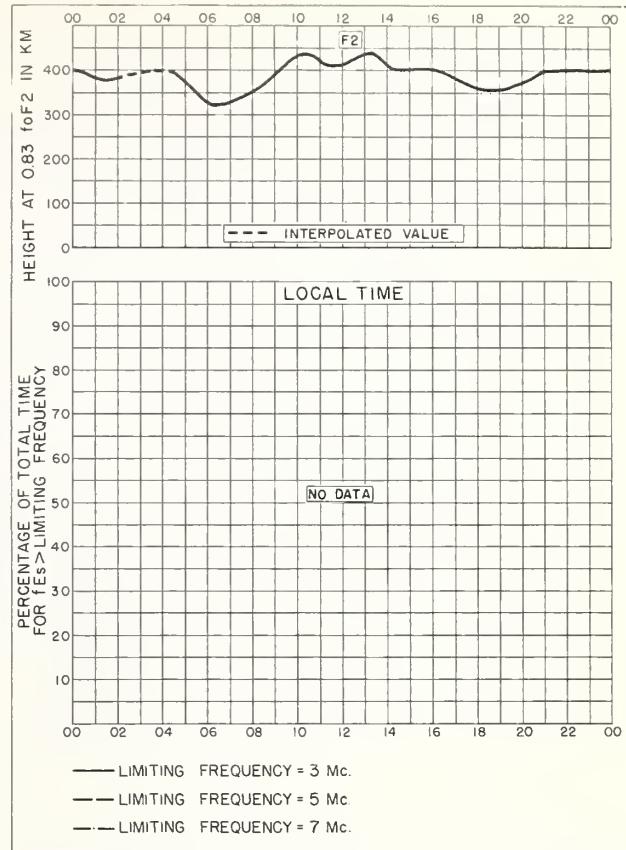


Fig. 105. DELHI, INDIA

JULY 1957

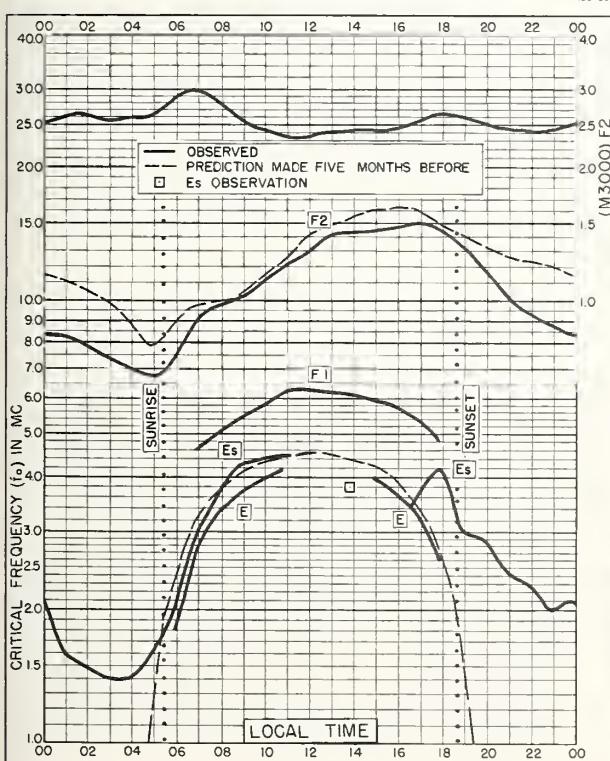


Fig. 106. AHMEDABAD, INDIA  
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JULY 1957

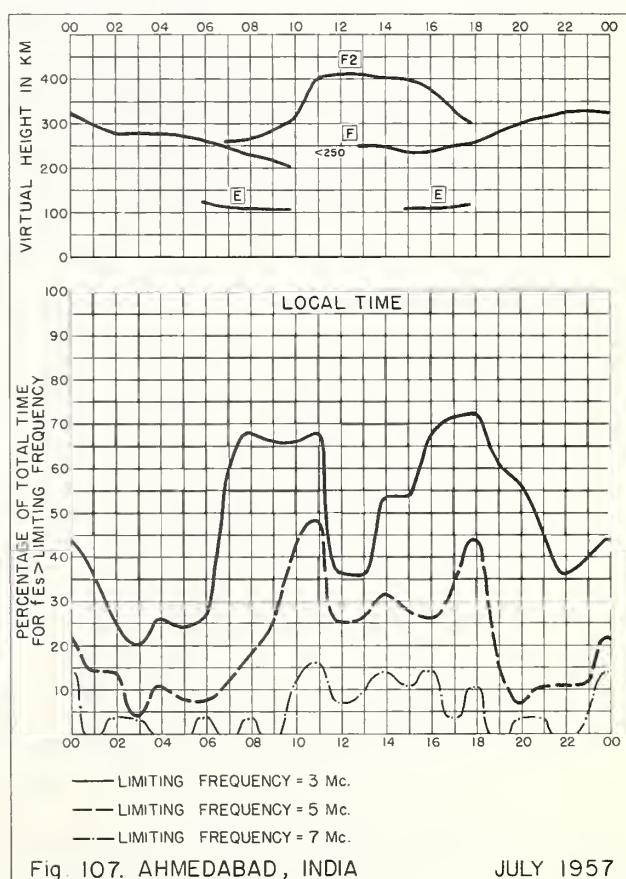


Fig. 107. AHMEDABAD, INDIA

JULY 1957

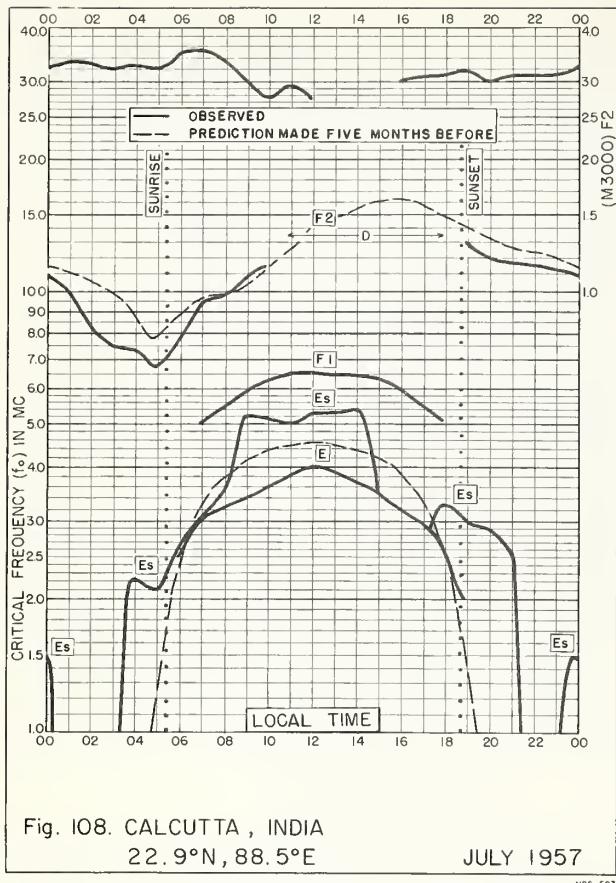


Fig. IO8. CALCUTTA, INDIA  
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JULY 1957

NBS 503

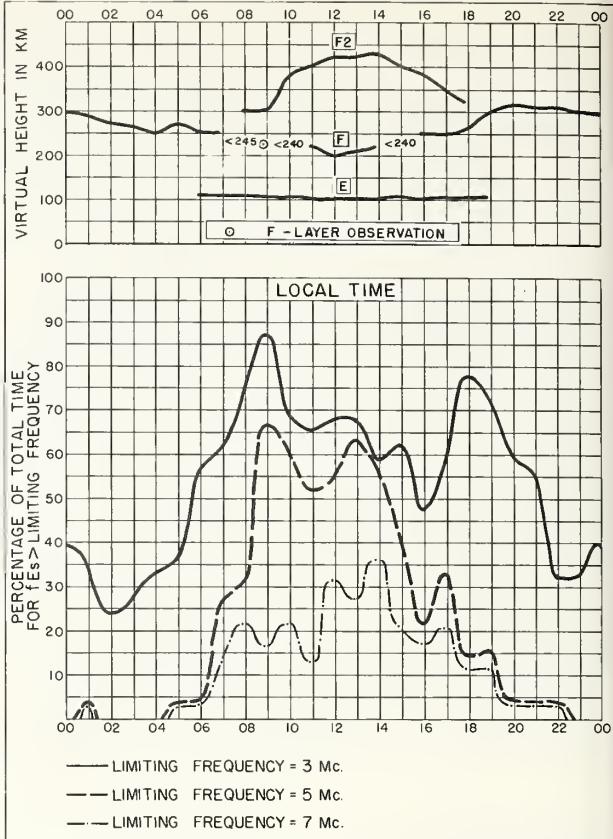


Fig. IO9. CALCUTTA, INDIA

JULY 1957

NBS 490

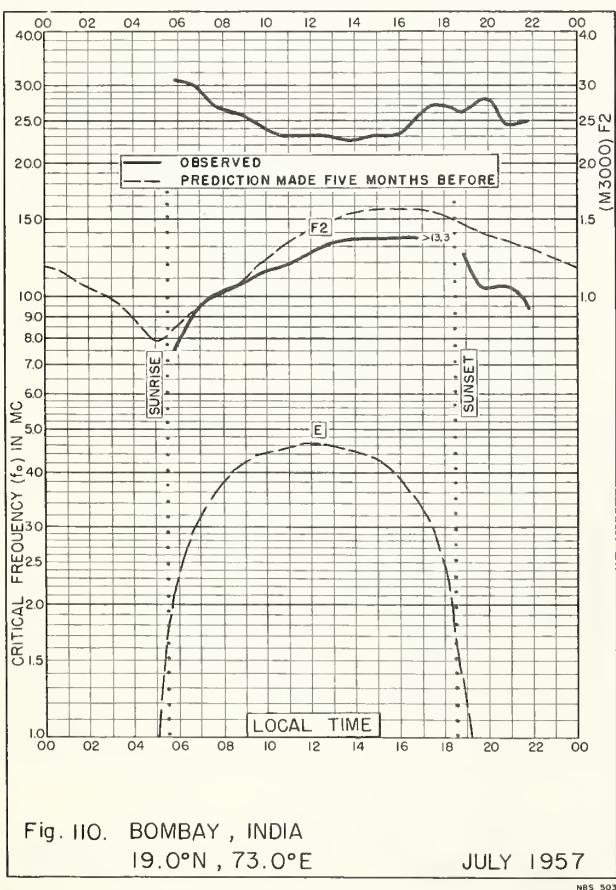


Fig. IIO. BOMBAY, INDIA  
19.0°N, 73.0°E

JULY 1957

NBS 503

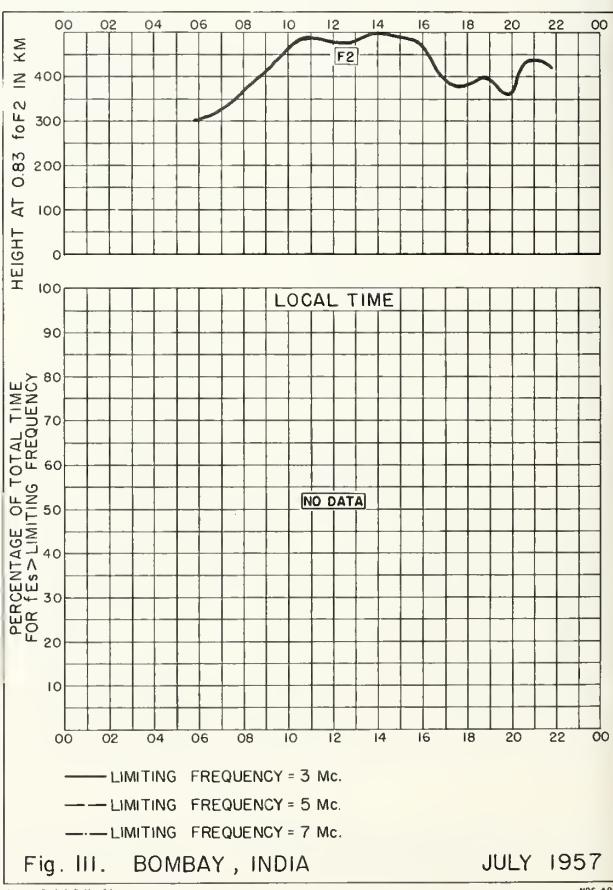
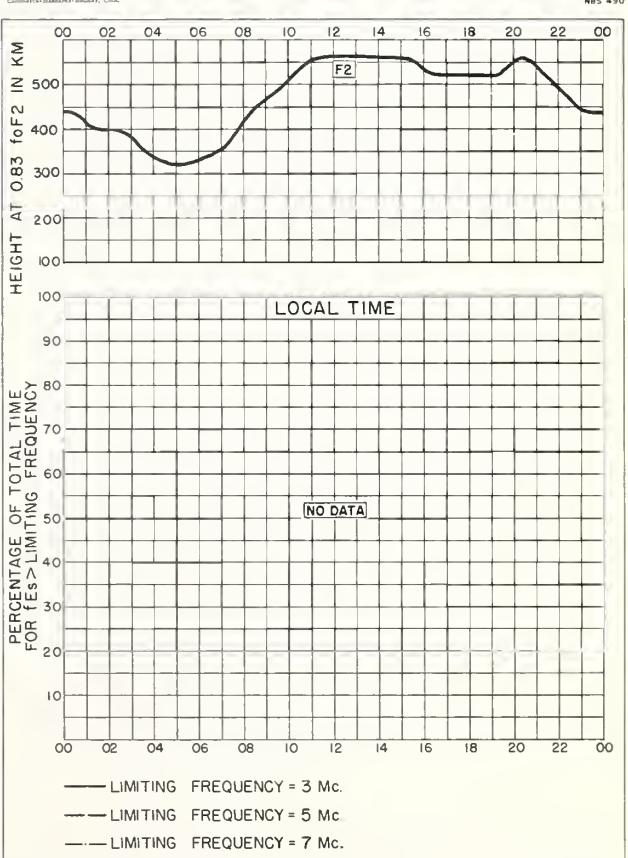
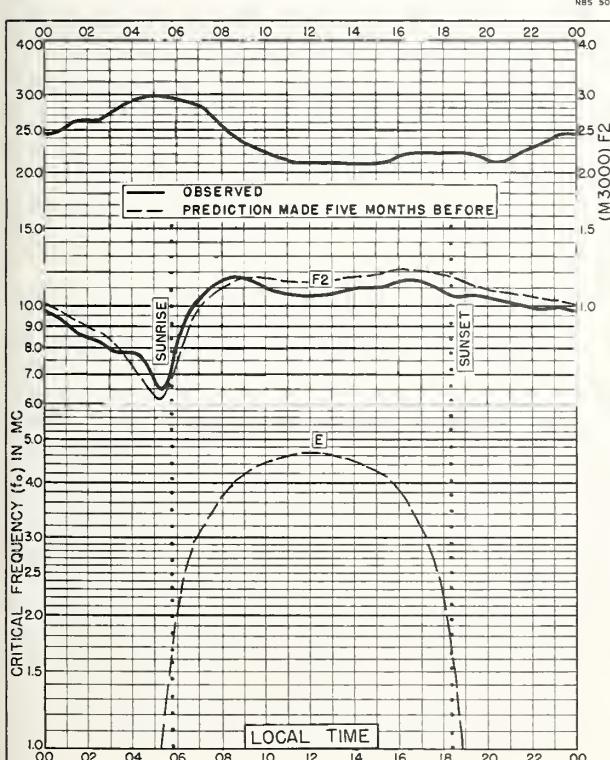
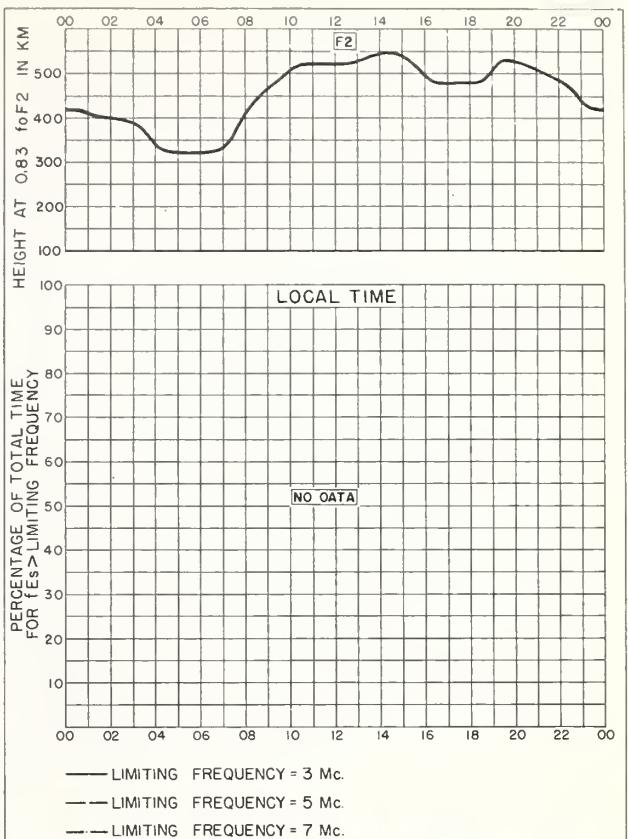
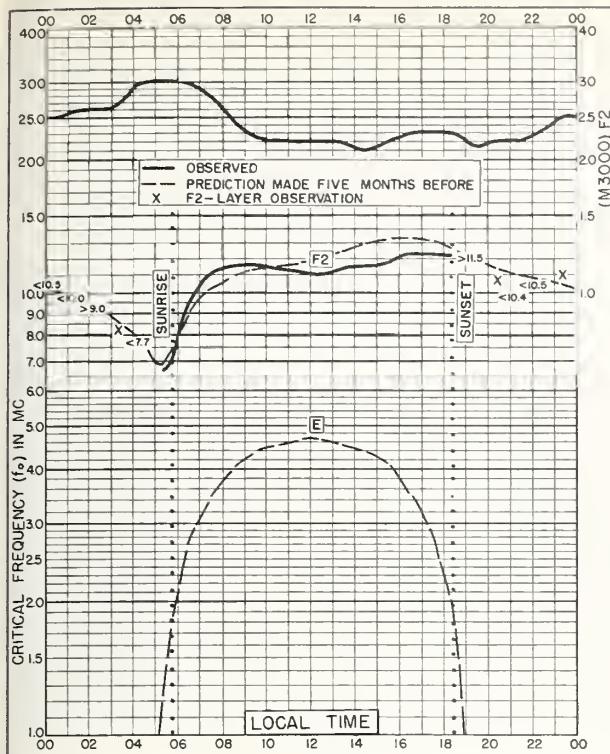


Fig. III. BOMBAY, INDIA

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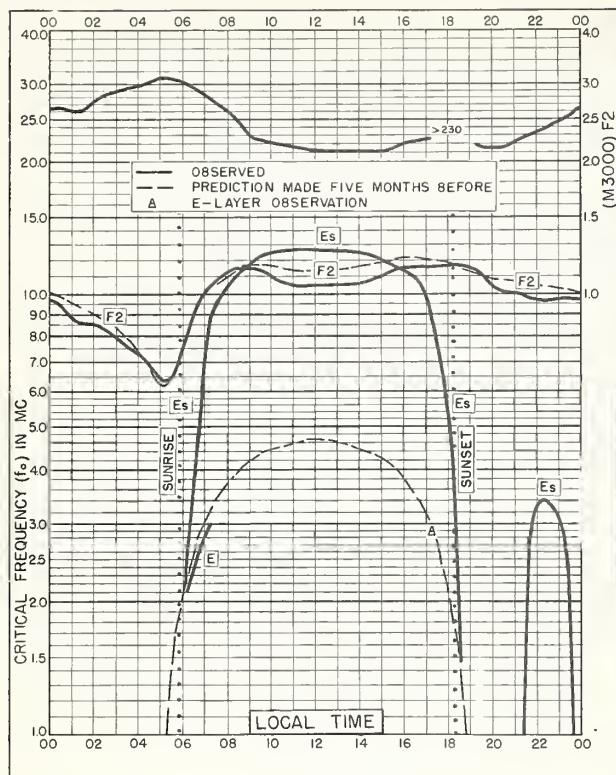


Fig. 116. KODAIKANAL, INDIA

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JULY 1957

NBS 503

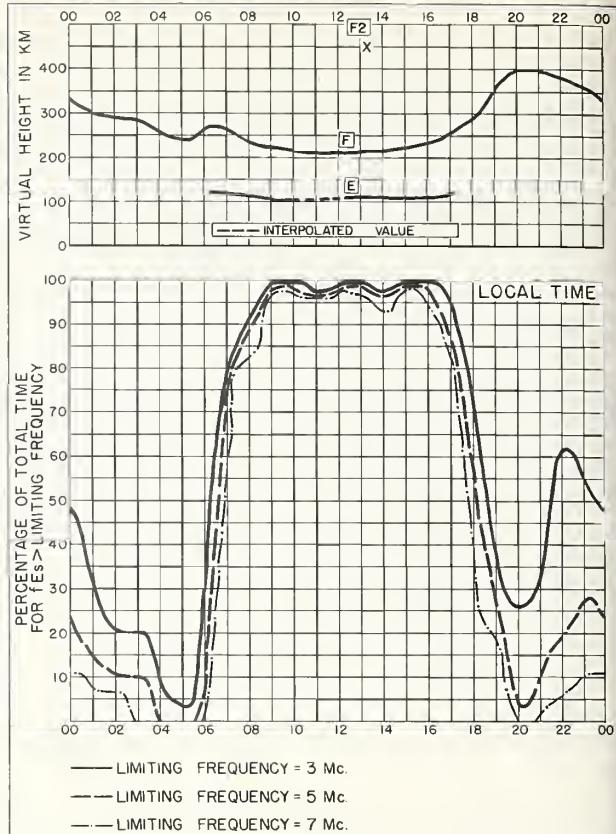


Fig. 117. KODAIKANAL, INDIA

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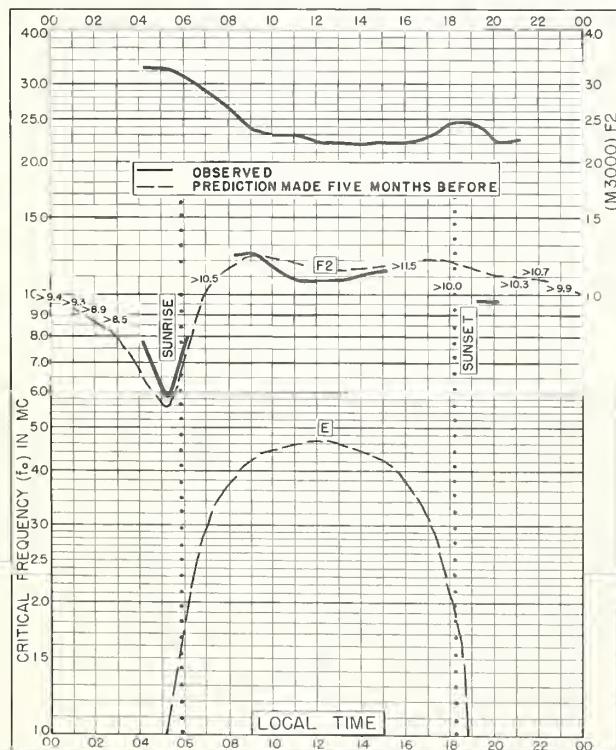


Fig. 118. TRIVANDRUM, INDIA

8.4°N, 77.0°E

JULY 1957

NBS 503

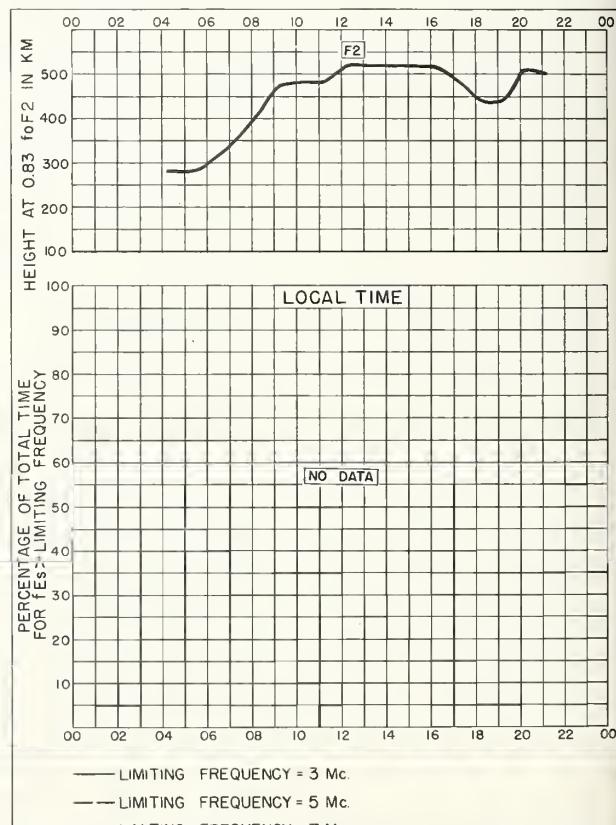


Fig. 119. TRIVANDRUM, INDIA

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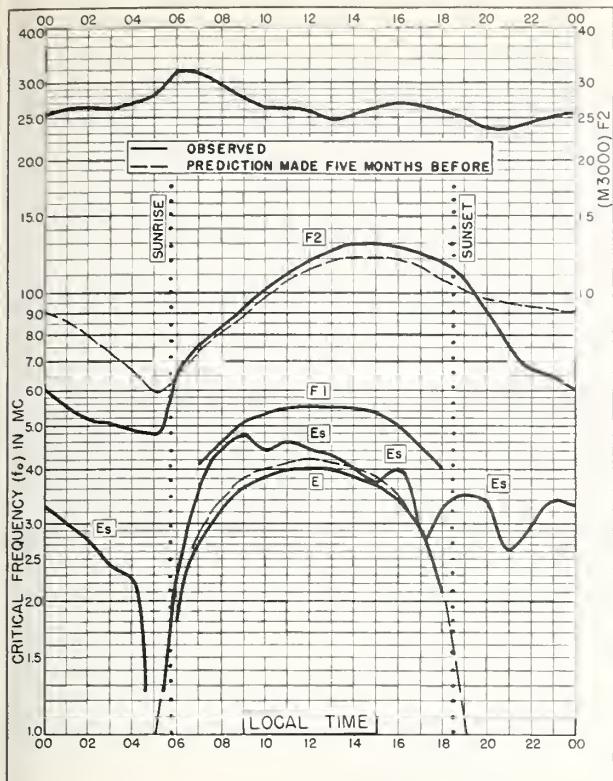


Fig. 120. DAKAR, FRENCH W. AFRICA  
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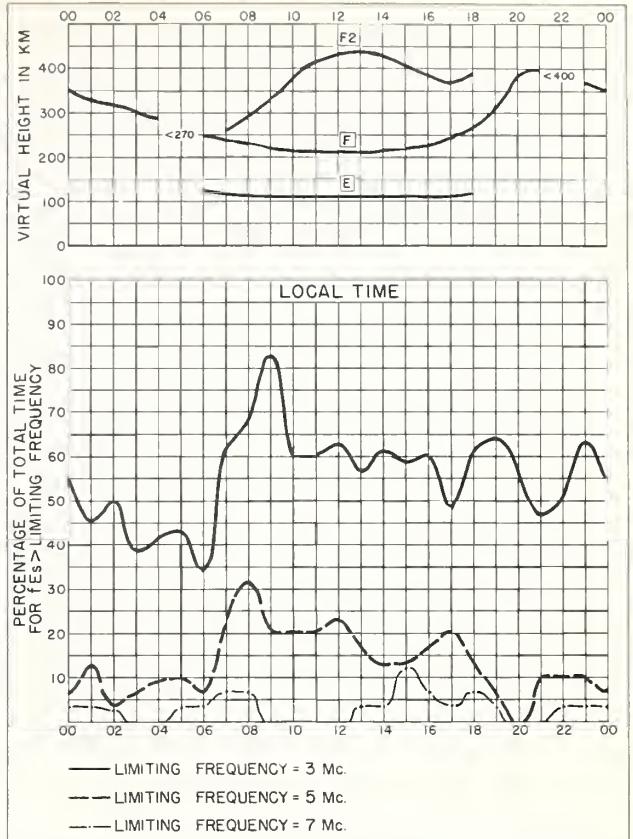


Fig. 121. DAKAR, FRENCH W. AFRICA JULY 1956

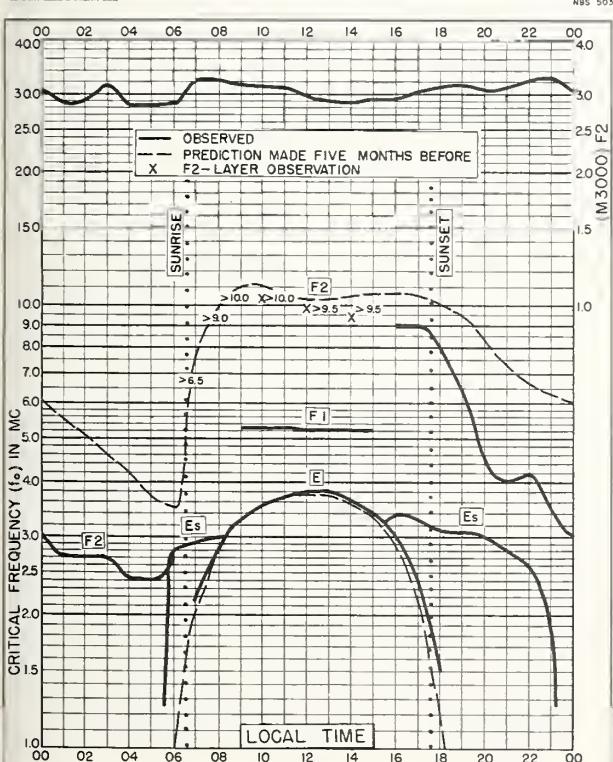


Fig. 122. TANANARIVE, MADAGASCAR  
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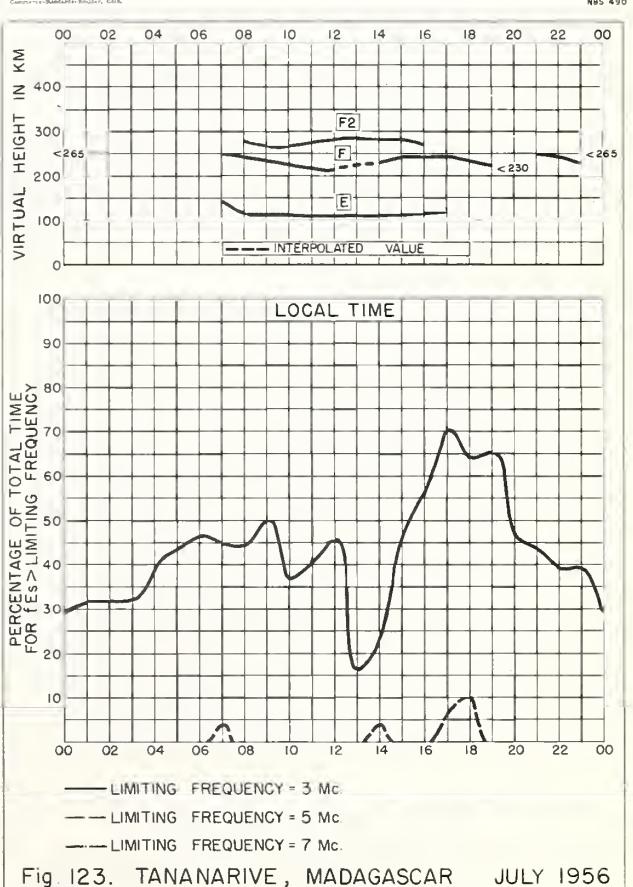
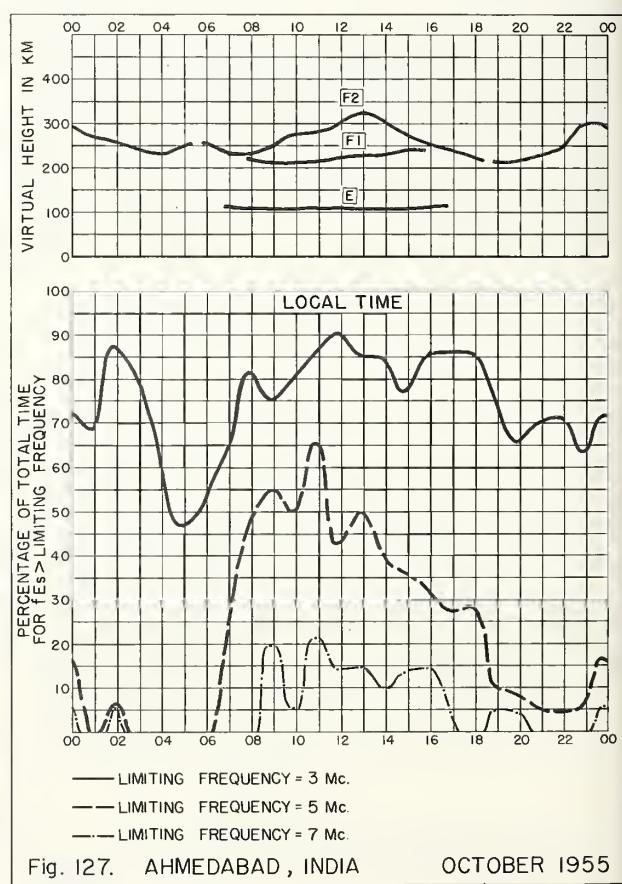
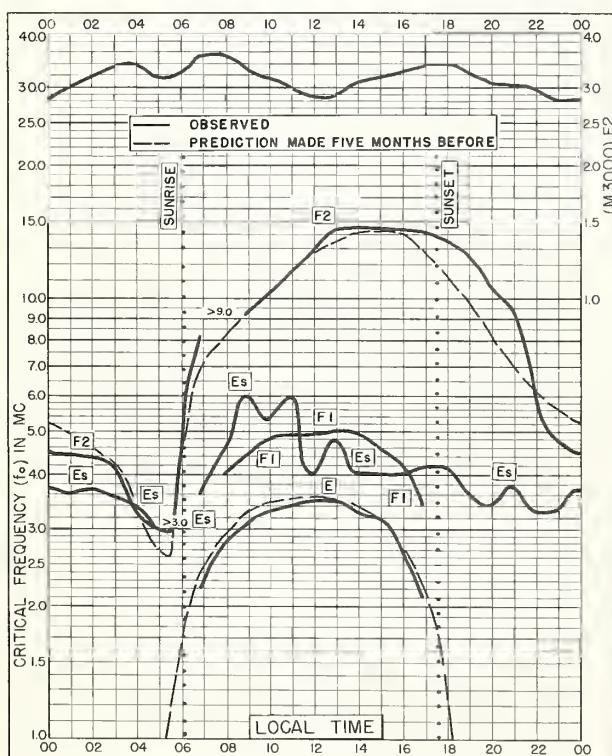
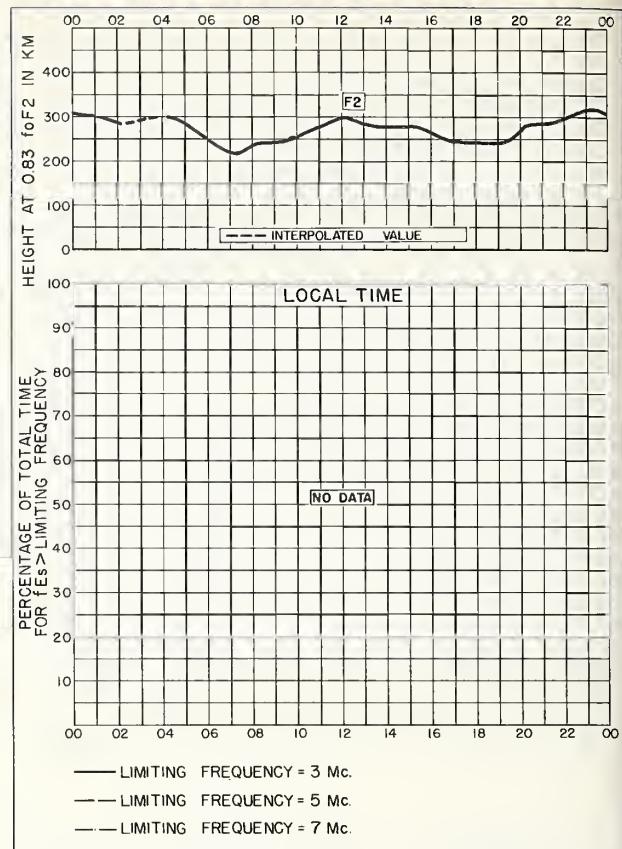
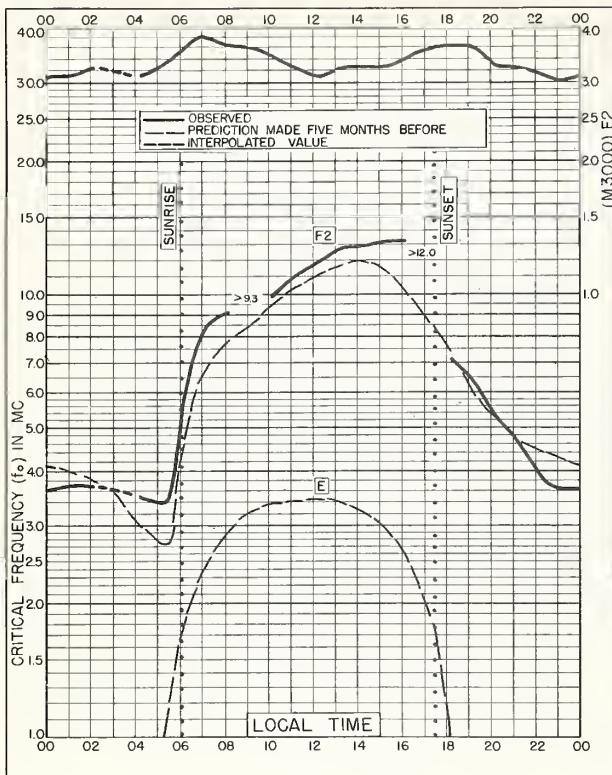


Fig. 123. TANANARIVE, MADAGASCAR JULY 1956



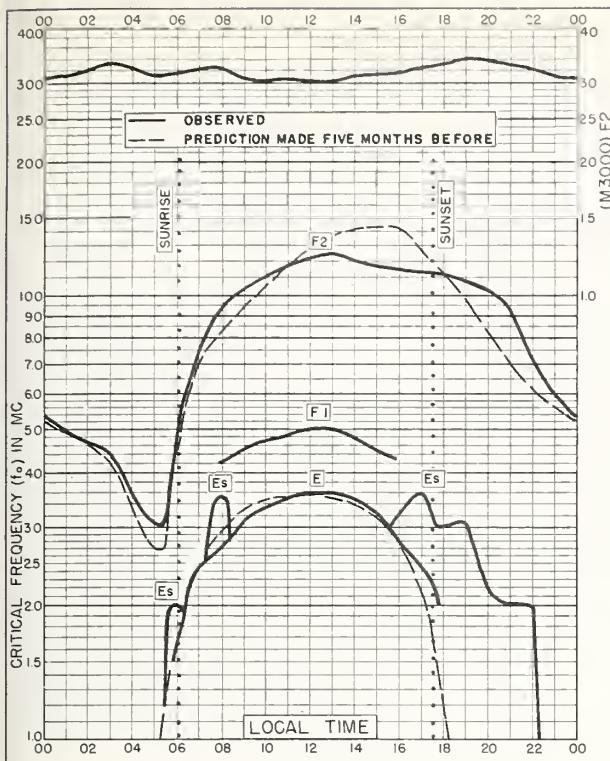


Fig. 128. CALCUTTA, INDIA  
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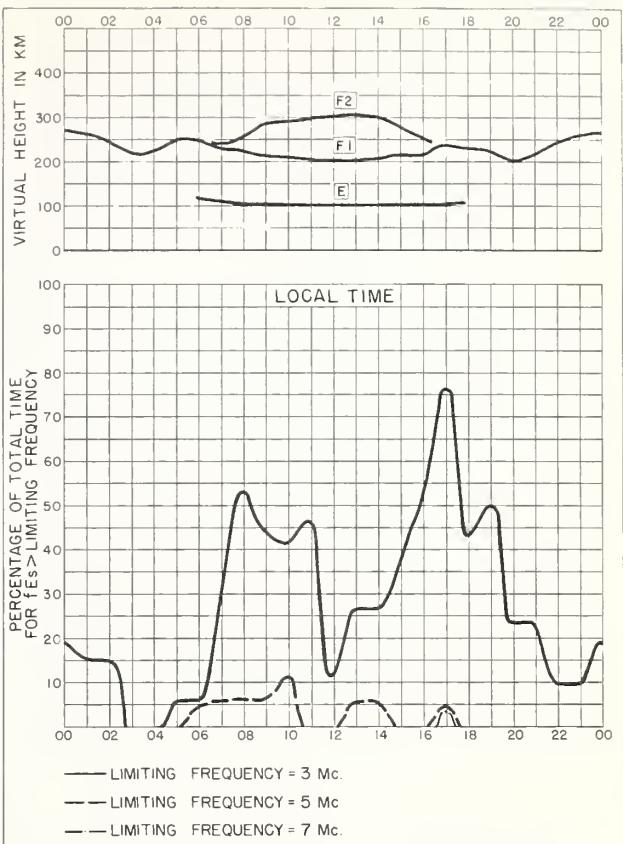


Fig. 129. CALCUTTA, INDIA OCTOBER 1955

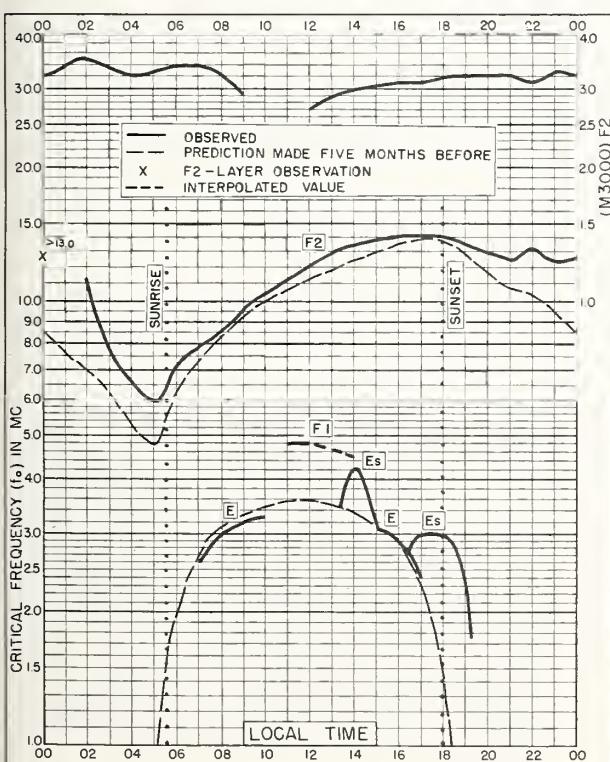


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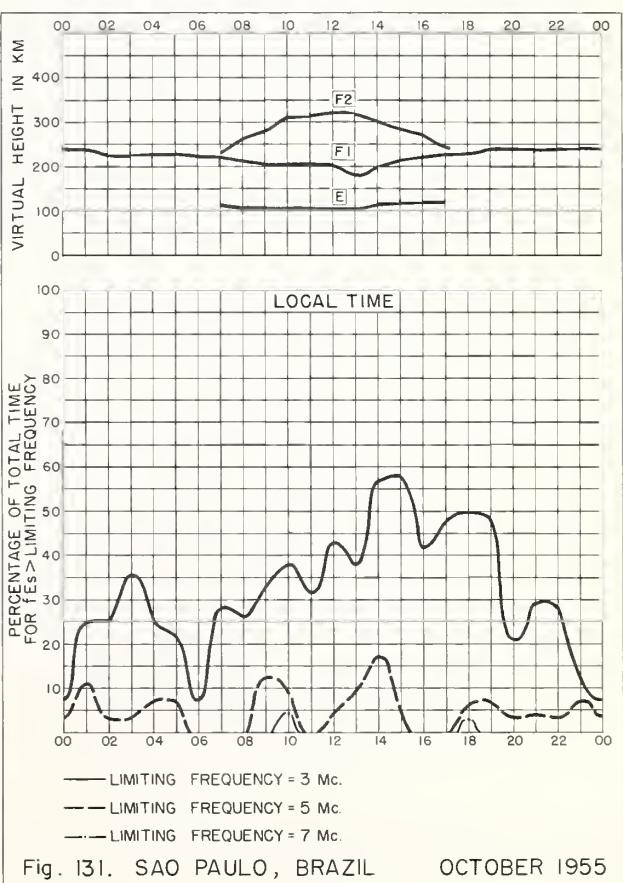


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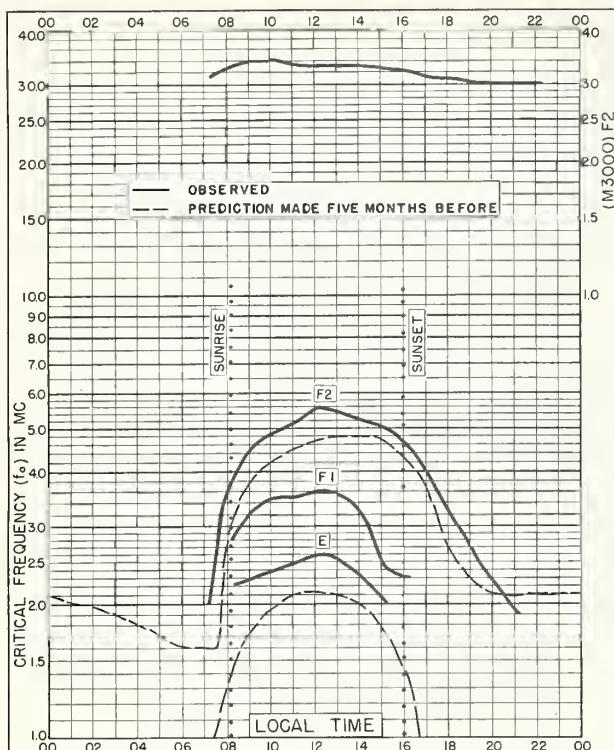


Fig. 132. CAMPBELL I.  
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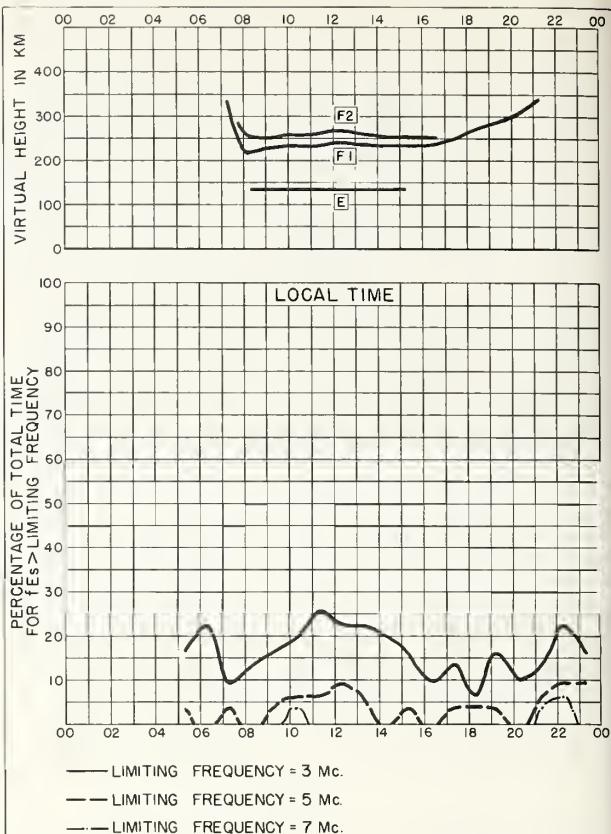


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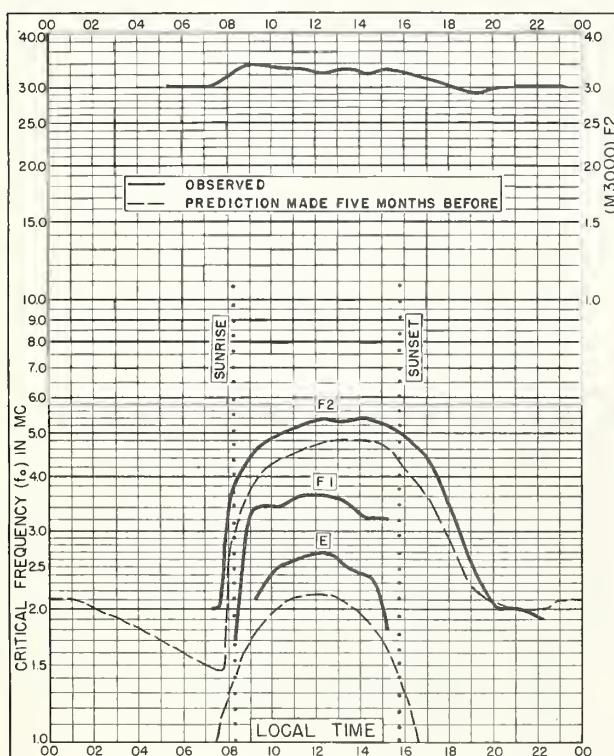


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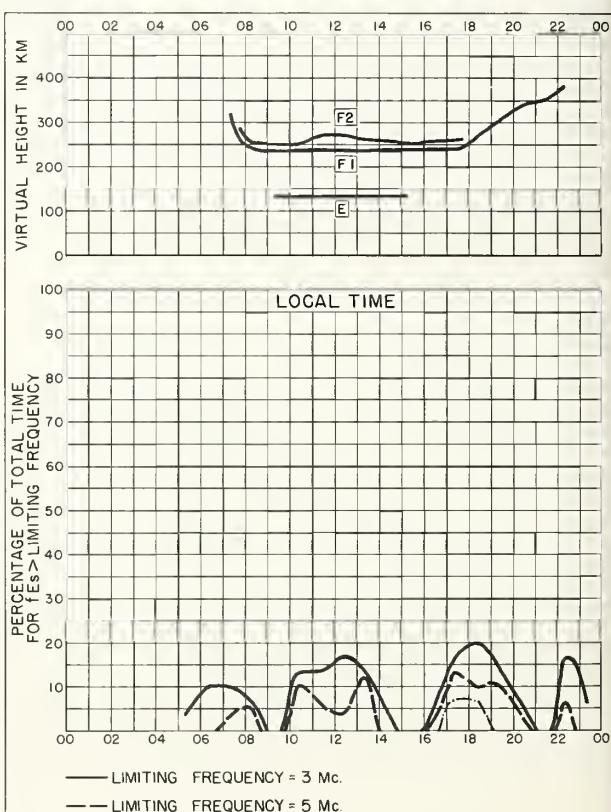


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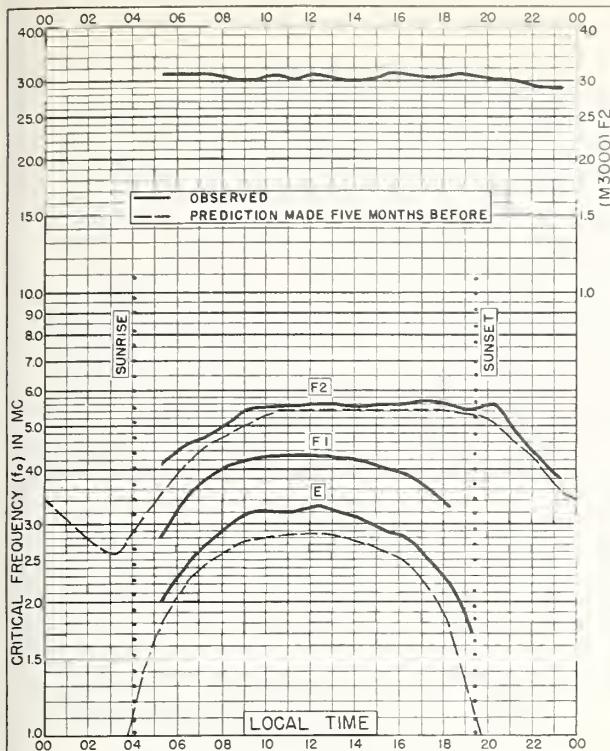


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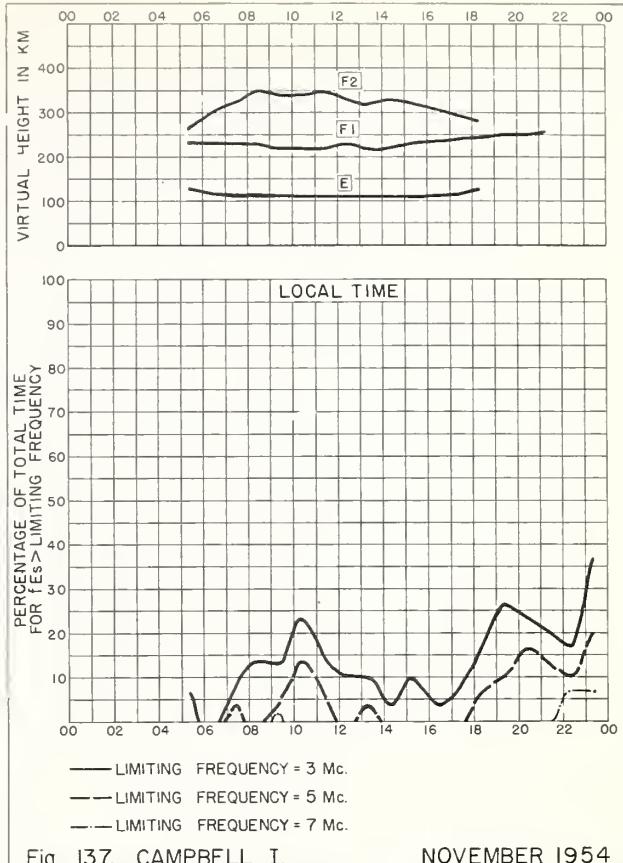


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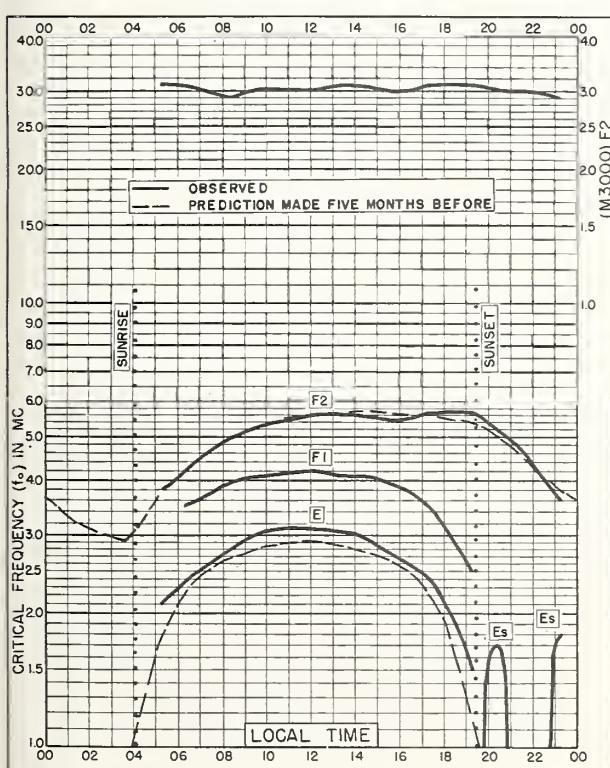


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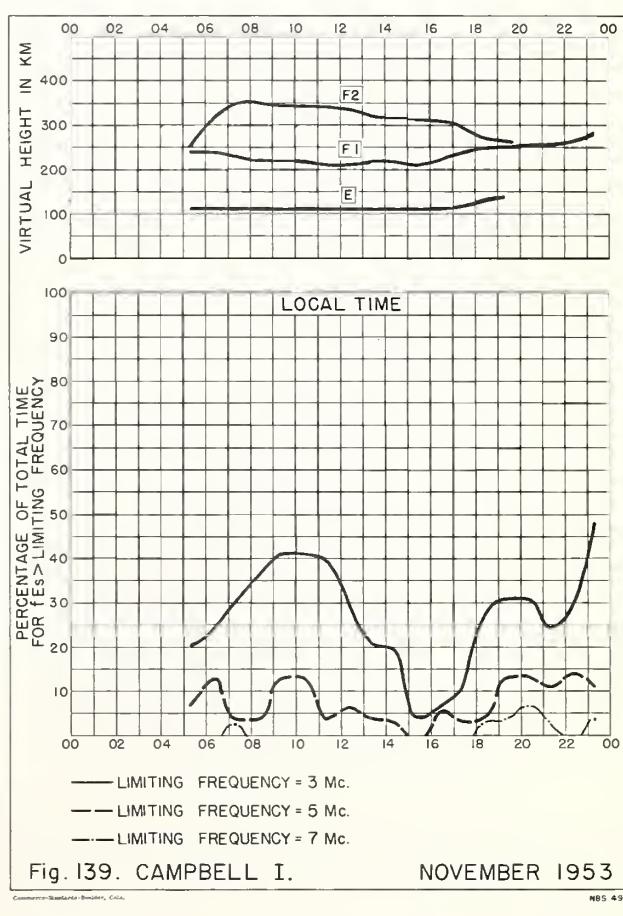
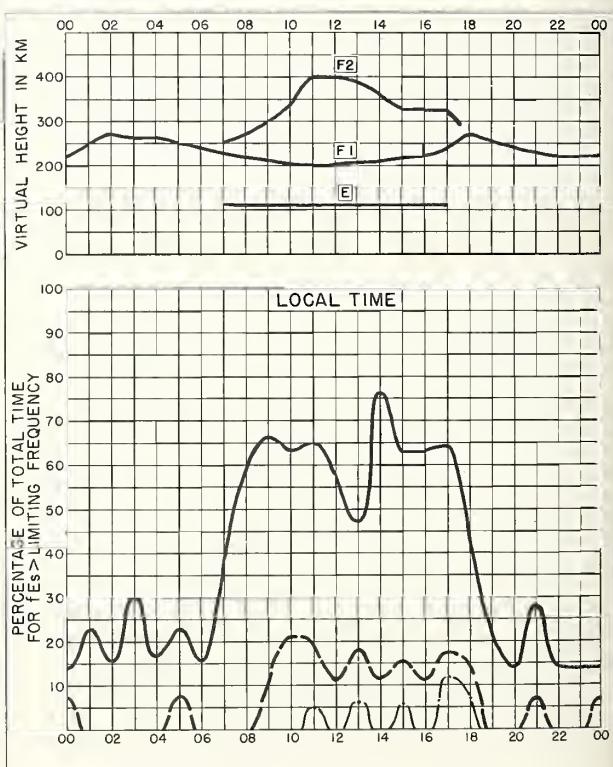
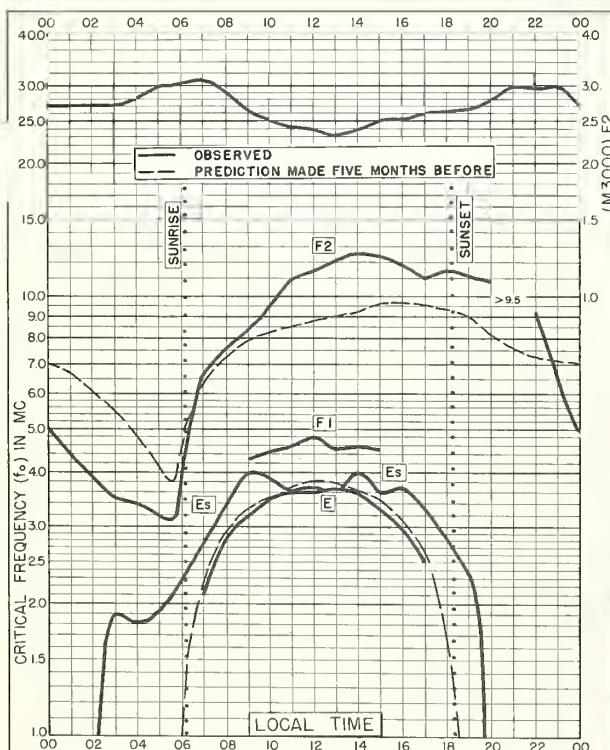
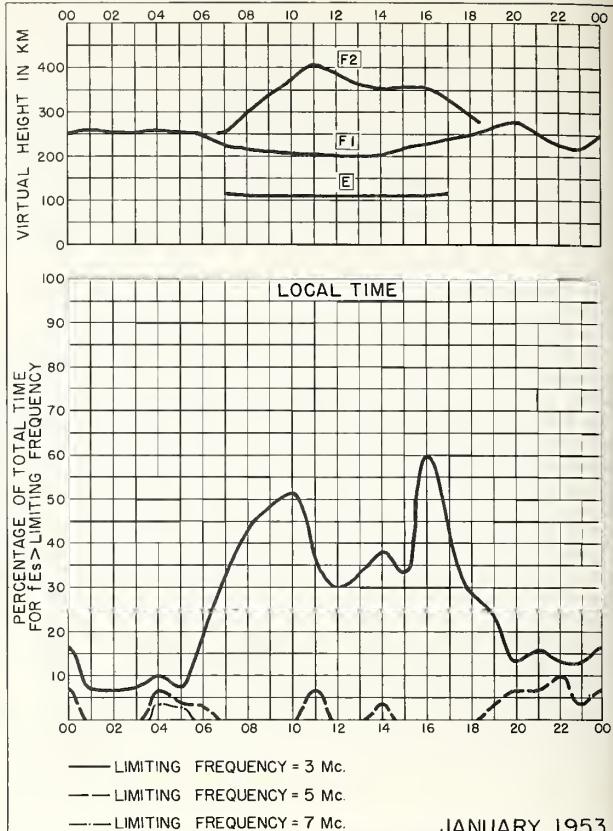
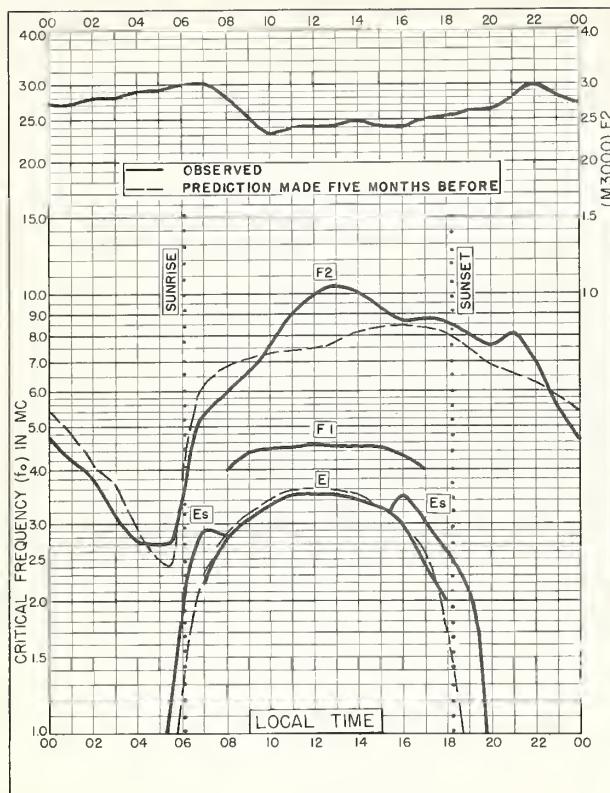


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[A detailed list of CRPL publications is available from the Central Radio Propagation Laboratory upon request]  
*Daily:*

Radio disturbance forecasts, every half hour from broadcast stations WWV and WWVH of the National Bureau of Standards.

Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

*Semiweekly:*

CRPL—J. North Atlantic Radio Propagation Forecast (of days most likely to be disturbed during following month).

CRPL—Jp. North Pacific Radio Propagation Forecast (of days most likely to be disturbed during following month).

*Semimonthly:*

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

*Monthly:*

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NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions. 30 cents.

NBS Circular 557. Worldwide Radio Noise Levels Expected in the Frequency Band 10 Kilocycles to 100 Megacycles. 30 cents.

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